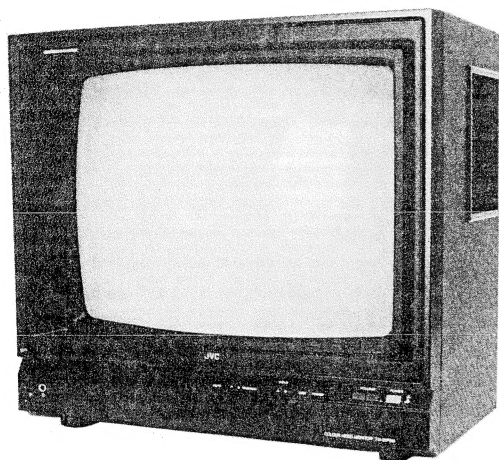


# JVC

## SERVICE MANUAL

### 20" COLOUR VIDEO MONITOR

### MODEL TM-20PSN (D)



## CONTENTS

1. Safety Precaution .....	2
2. Features .....	3
3. Outline .....	3
[Block Diagram] .....	3
4. Functions .....	4 ~ 5
5. Service Adjustment .....	6 ~ 10
6. Replacement Parts List .....	11 ~ 21
[Exploded View] .....	17 ~ 21
7. Replacement of the chip .....	22
8. How to Remove for Service .....	23
9. Packing Diagram .....	24
* With Schematic Diagram .....	① ~ ⑫

## SPECIFICATIONS

(Design and specifications subject to change without notice).

Dimension : 52.2 cm (W) x 48.8 cm (D) x 48.3 cm (H)  
 Weight : (Without reflector)  
 Weight : 26.1 kg  
 Colour system . . . PAL/SECAM/NTSC (3.58MHz, 4.43MHz)  
 Scanning . . . . . 525 Lines, 60 Hz (NTSC)  
                                 625 Lines, 50 Hz (PAL/SECAM)  
 Horizontal resolution . . . . . 270 Lines (NTSC)  
                                 300 Lines (PAL/SECAM)

**INPUT A/B**

- Video . . . . . 1 Vp-p, 75  $\Omega$
- Audio . . . . . 390 mVrms (-6 dBs), Hi. Impedance

{ A terminal are bridge termination with front and rear terminal. B terminal are bridge termination with VTR connector, however bridge out put level of audio is 300 mVrms (-8 dBs). }

- VTR Connector (EIAJ 8 Pin)

Video in . . . . . 1 Vp-p, 75  $\Omega$   
 Video out . . . . . 1 Vp-p, 75  $\Omega$   
 Audio in . . . . . 775 mVrms (0 dBs), Hi. Impedance  
 Audio out . . . . . 300 mVrms (-8 dBs), Low Impedance

**LINE OUT**

Video . . . . . 1 Vp-p, 75  $\Omega$   
 Audio . . . . . 300 mVrms (-8 dBs)  
                                 Low Impedance

Scan frequency . . . . . H. 15.75 kHz/15.625 kHz  
                                 V. 50 Hz/60 Hz

Power Input . . . . . 120V ~ 240V AC, 50 Hz/60 Hz  
 Power Consumption . . . . . 105W (max.), 90W (avg.)

Picture Tube . . . . . 20" In-Line  
 Viewable Picture Size . . . . . 30.3 cm (H) x 40.4 cm (W)

High Voltage . . . . . 27 kV  $\pm$  1 kV (at zero beam current)

Speaker . . . . . 10 cm round type x2, 12.5  $\Omega$

Audio Power Output . . . . . 3W + 3W, 12.5  $\Omega$

Tube . . . . . 1  
 IC . . . . . 18  
 Transistor . . . . . 87

# 1. SAFETY PRECAUTION

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.  
For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of receiver should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in television sets have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by ( ⚠ ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. If any repair has been made to the chassis, it is recommended that the B<sub>1</sub> setting should be checked or adjusted (See ADJUSTMENT OF B<sub>1</sub> POWER SUPPLY).
5. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
6. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10k $\Omega$  2W resistor to the anode button.
7. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

## 8. ISOLATION CHECK

### (SAFETY FOR ELECTRICAL SHOCK HAZARD)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, channel selector knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

#### (1) DIELECTRIC STRENGTH TEST

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3,000V AC (r.m.s.) for a period of one second.

This method of test requires a test equipment not generally found in the service trade.

#### (2) LEAKAGE CURRENT CHECK

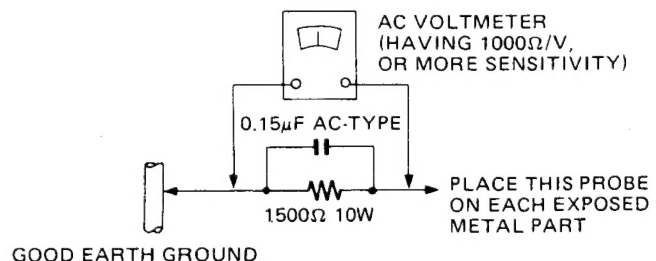
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.) Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA.

#### • ALTERNATE CHECK METHOD

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.) Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1500 $\Omega$  10W resistor, paralleled by a 0.15 $\mu$ F AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.).

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



## 2. FEATURES

- Copes with PAL/SECAM/NTSC colour system.
- Adopts microcomputer IC's for DC controls of sound volume, bright, colour, picture and so on.
- With two AV input terminals.
- Skew switch that corrects a bent portion of the screen when play back a VTR.
- Adopts a stereo circuit on the audio circuit.
- Adopts a switching regulator on the power supply circuit.

## 3. OUTLINE

- This model is a video monitor that copes with PAL/SECAM/NTSC colour system.

### 1. Automatic switching of colour system

#### (1) PAL/SECAM $\leftrightarrow$ NTSC switching

The vertical frequency detection voltage is used as the switching signal.

50 Hz  $\rightarrow$  PAL/SECAM, 60 Hz  $\rightarrow$  NTSC

#### (2) PAL $\leftrightarrow$ SECAM switching

The killer voltage of the PAL/SECAM colour circuit is used as the switching signal.

### 2. Manual switching of colour system

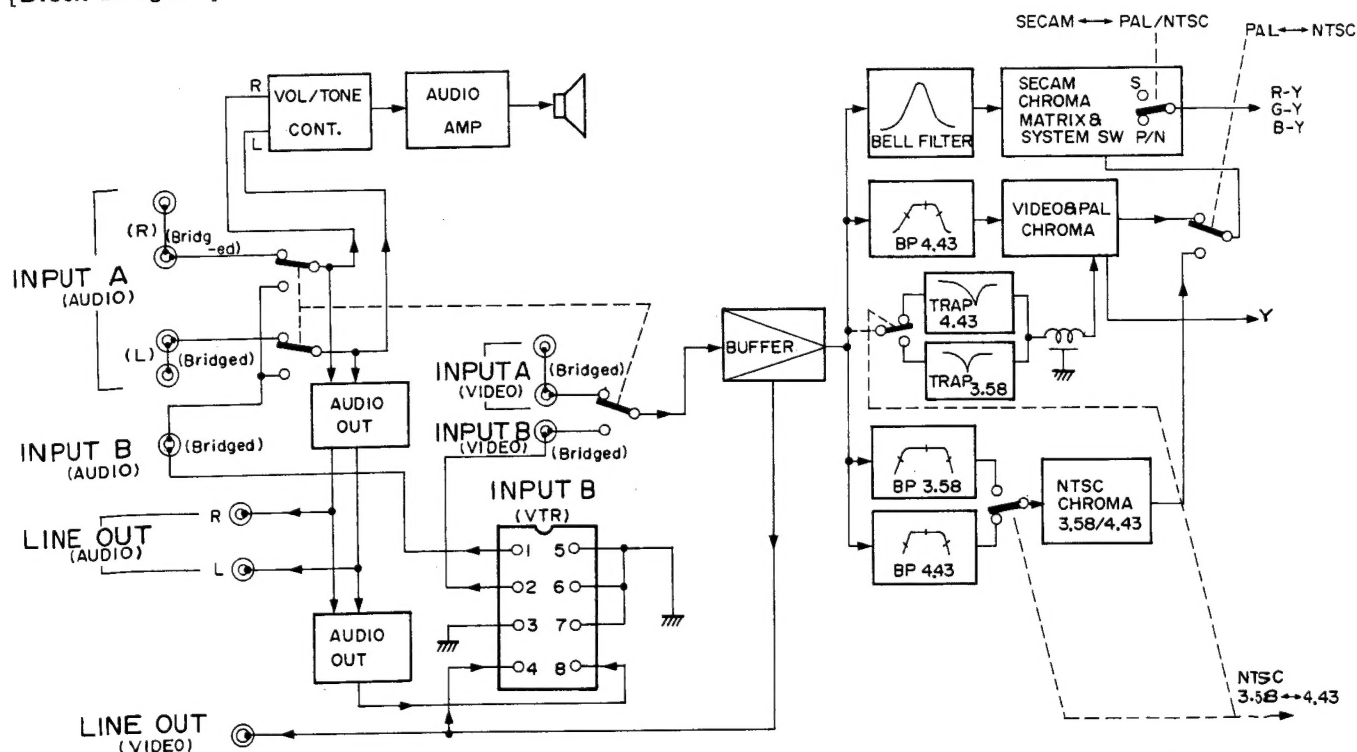
#### (1) Switching PAL, SECAM and NTSC

The voltage used for automatic switching is forcibly applied to the circuit, switching the change-over switch to the desired colour system.

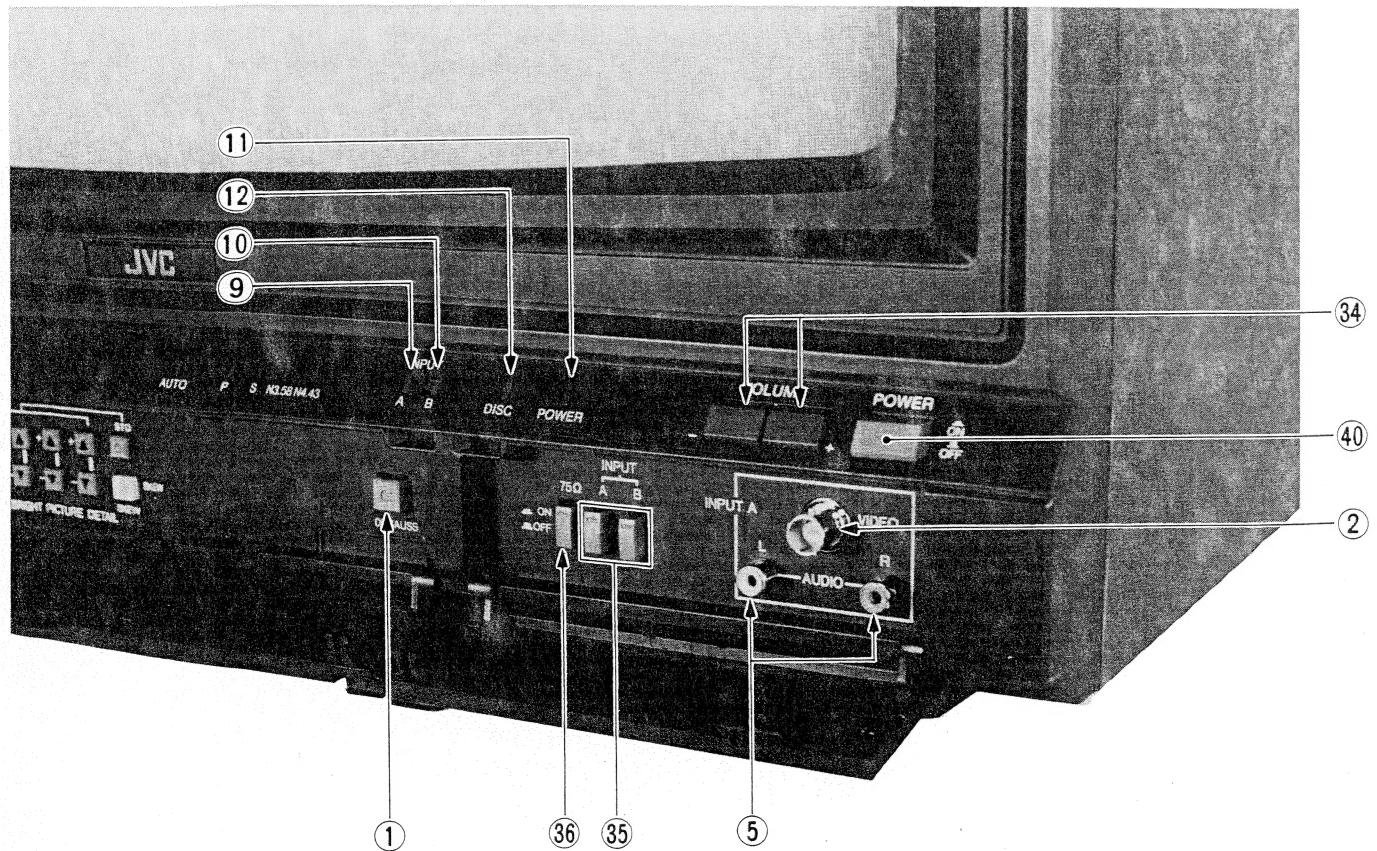
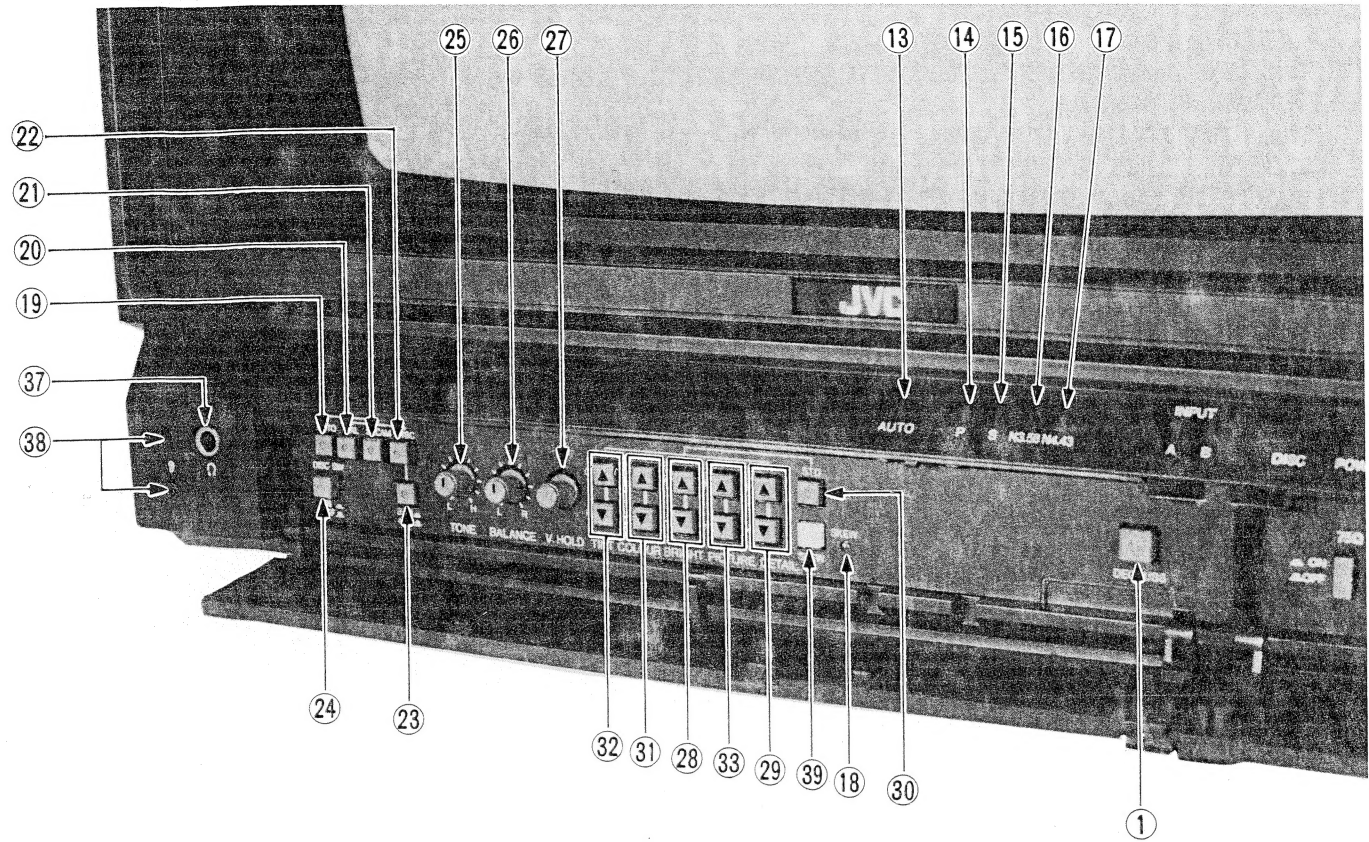
#### (2) Switching NTSC system 3.58/4.43

The switch circuit is operated with the 3.58/4.43 change-over switch for the system selected by BPT, or trap.

[Block Diagram]

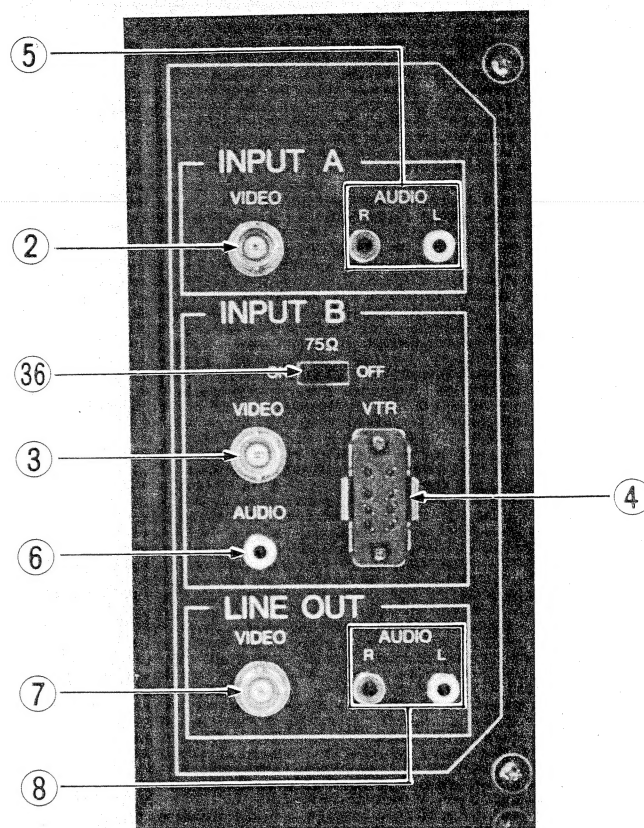


## 4. FUNCTIONS





- |   |                        |
|---|------------------------|
| 1. Deg. Switch                            | 21. SECAM SWITCH       |
| 2. VIDEO IN-A                             | 22. NTSC SWITCH        |
| 3. VIDEO IN-B                             | 23. N3.58/N4.43 SWITCH |
| 4. VTR TERMINAL<br>(VTR IN/OUT Connector) | 24. DISC SWITCH        |
| 5. AUDIO IN-A                             | 25. V. HOLD CONTROL    |
| 6. AUDIO IN-B (MONO)                      | 26. BALANCE CONTROL    |
| 7. VIDEO LINE OUT                         | 27. TONE CONTROL       |
| 8. AUDIO LINE OUT                         | 28. BRIGHT CONTROL     |
| 9. INPUT A IND.                           | 29. DETAIL CONTROL     |
| 10. INPUT B IND.                          | 30. STD CONTROL        |
| 11. POWER IND.                            | 31. COLOUR CONTROL     |
| 12. DISC. IND.                            | 32. TINT CONTROL       |
| 13. AUTO IND.                             | 33. PICTURE CONTROL    |
| 14. PAL IND.                              | 34. VOL. CONTROL       |
| 15. SECAM IND.                            | 35. INPUT A/B SWITCH   |
| 16. NTSC (3.58) IND.                      | 36. 75Ω BRIDGE OUT SW. |
| 17. NTSC (4.43) IND.                      | 37. HEADPHONE JACK     |
| 18. SKEW IND.                             | 38. EARPHONE JACK      |
| 19. AUTO SWITCH                           | 39. SKEW SWITCH        |
| 20. PAL SWITCH                            | 40. POWER SWITCH       |



#### ■ SKEW SWITCH

Compensates partially skewed screen display on the screen that appears during VTR playback, caused by tape deterioration or other factors.

#### ■ DISC SWITCH

When a video disc with 50 Hz (PAL/SECAM) vertical synchronous frequency is under playback on a video disc player (VHD), this switch performs automatic frequency changeover to prevent vertical run of pictures.

ON: Automatically switches 50 Hz to 60 Hz.

OFF: Copes with 60 Hz (NTSC) video disc.

#### ■ VIDEO IN A

The terminal for monitoring by connecting the video output from a video camera, VTR, or video disc player (VHD).

A bridge connection is applied to INPUT A at the front and rear sides, enabling a bridge connection by using the two terminals.

#### ■ VIDEO IN B

The terminal for monitoring by connecting the video output from a video camera, VTR, or video disc player (VHD).

When input signals exist at the VTR connector, this terminal functions as the bridge output terminal.

#### ■ VIDEO LINE OUT

The terminal used when recording into a VTR or other equipment. Output from this terminal are the video signals input into the VIDEO IN A/B and the VTR connector.

#### ■ AUDIO IN A (STEREO)

The terminal for monitoring by connecting the audio output from a video camera, VTR, or video disc player (VHD).

A bridge connection is applied to INPUT A at the front and rear sides, enabling a bridge connection by using the two terminals.

#### ■ AUDIO IN B (MONO)

The terminal for monitoring by connecting the video output from a video camera, VTR, or video disc player (VHD).

When input signals exist at the VTR terminal, this terminal functions as the bridge output terminal.

#### ■ AUDIO LINE OUT

The terminal used when recording into a VTR or other equipment. Output from this terminal are sound signals input into the AUDIO IN A/B and the VTR connector.

#### ■ VTR connector (8PIN)

A/V IN OUT connector for connection with video equipment.

When input signals exist at the INPUT B, the bridge output is input into the pins ① and ②; however, those do not function as the bridge output terminal.

#### ■ 75Ω SWITCH

Turn this switch OFF when used by applying bridge connection. For other uses, keep it ON.

**NOTE:** Do not use the bridge terminal as an input terminal at the same time.

## 5. SERVICE ADJUSTMENTS

### PICTURE TUBE

The picture tube is a precision in-line gun type. For this picture tube, dynamic convergence is carried out by a precision deflection yoke which eliminated the use of convergence yoke and convergence circuit. The adjustment of picture tube is therefore made easier as only the adjustment of static convergence by using a magnetic is enough. The deflection yoke and purity/convergence magnets assembly has been set at the factory and requires no field adjustments.

However, should the assembly be accidentally jarred or ampered with, some or all adjustments may be necessary.

### COLOUR PURITY & VERTICAL CENTER

Loosen yoke retaining clamp (Fig. 5-1). With a sharp knife cut between the picture tube and the bond. Remove wedges completely and clean off dried adhesive from the picture tube. PAINT is used to lock the tabs of the purity/convergence magnet assembly in place (Fig. 5-1). The paint must be removed with the end of a screwdriver before any adjustments are attempted.

1. Display a monochrome pattern.
2. Let the purity tabs come in line horizontally as is shown in Fig. 5-3. A long tab should be in the same direction as the other short tab.
3. Move the yoke slowly backward.
4. Turn the green cut-off control to maximum and the red and blue cut-off controls to minimum. Then adjust the screen control so that the green band can be seen best. (Fig. 5-2, 4)
5. Rotate the two tabs in the opposite directions and with them kept at an angle, together in either direction so that the green band is centered on the picture tube.
6. Check the vertical center position by displaying a horizontal line. Unless correct, bring it to the center by rotating the two tabs, kept at an angle, together in either direction (Fig. 5-5, 6)
7. Repeat steps 5 and 6 alternately until the green band and the vertical center come to the center.
8. Move the yoke slowly towards the bell of the tube so that the whole surface of the picture tube is filled with a green pure raster.
9. Turning red or blue cut-off control to maximum and green cut-off control to minimum, make sure of a red or blue pure raster.
10. Secure yoke retaining clamp (do not install wedges at this time).

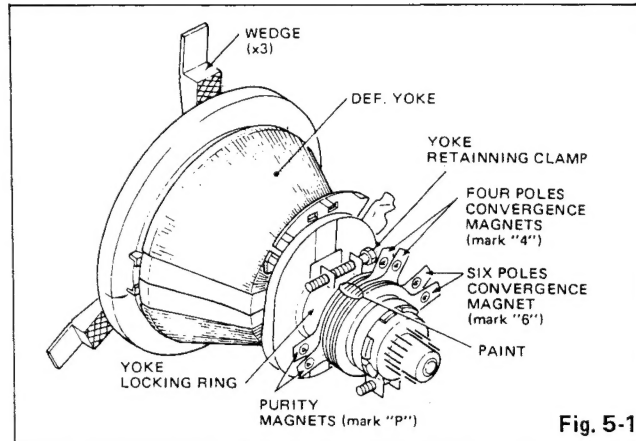


Fig. 5-1

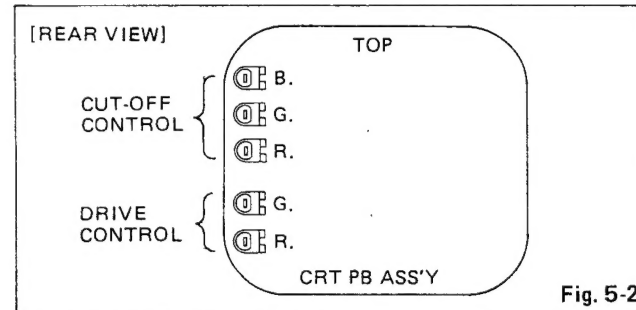


Fig. 5-2

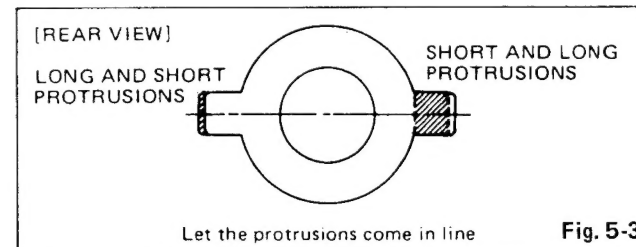


Fig. 5-3

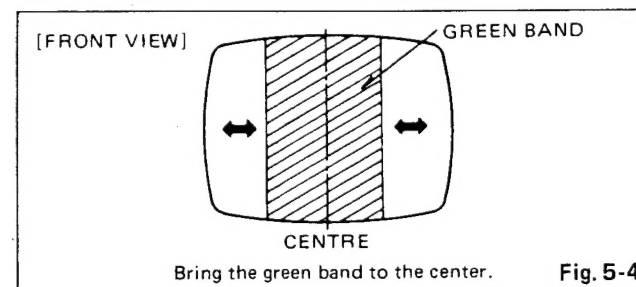


Fig. 5-4

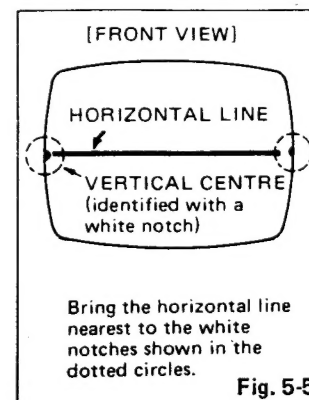


Fig. 5-5

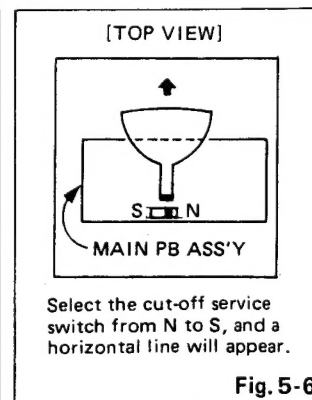


Fig. 5-6

## STATIC CONVERGENCE & DYNAMIC CONVERGENCE

Static convergence is achieved by four magnets located on the neck, nearest the base of the picture tube. The front pair of magnetic rings (closest to the purity tabs) are adjusted to converge the red and blue crosshatch lines.

The rear pair of convergence rings (closest to the base of the picture tube) are adjusted to converge the magenta (R/B) and green crosshatch lines.

Dynamic convergence is achieved by tilting the deflection yoke, Up-Down and Left-Right.

1. Display a crosshatch pattern, and adjust BRIGHTNESS and CONTRAST control for a distinct pattern.
2. Adjust the convergence around the edges of the picture tube by tilting the yoke, up-down and left-right, and temporarily install one wedge at the top of the yoke. (Fig. 5-9, 10, 11)
3. Rotate the front pair of tabs as a unit to minimize the separation of the red and blue lines around the center of the screen. To adjust the convergence of red and blue, vary the angle between the tabs. (Fig. 5-7)
4. Rotate the rear pair of tabs as a unit to minimize the separation of the magenta (R/B) and green lines. (Fig. 5-8)
5. Adjust the spacing of the rear tabs to converge the magenta and green lines.
6. Apply paint to fix 6 magnets.
7. Remove the wedge installed temporarily on the yoke.
8. Tilting the angle of the yoke up, down and sideways, and adjust the yoke so as to obtain the circumference convergence. (Fig. 5-10, 11)
9. Insert three wedges to the position as shown in Fig. 5-12, to obtain the best circumference convergence.
10. Wedge has a backing of double sided adhesive tape. Therefore, tear off one side of adhesive tape, and fix the wedges.
11. White balance adjustment (Black & White tracking) can now be performed.

## WHITE BALANCE ADJUSTMENT (Black and White Tracking)

1. Display a monochrome pattern.
2. Set the red and green drive controls for their mechanical center (Fig. 5-2).
3. Turn the red, green and blue cut-off controls and the screen control fully counterclockwise.
4. Select a service switch as shown in Fig. 5-6.
5. Turn screen control slowly clockwise until a very faint horizontal line appears.
6. Turn the cut-off control of the colour which has appeared first, clockwise by about  $10^\circ$  and then adjust the screen control again so that the colour may shine faintly.
7. Turn the other colour cut-off controls slowly clockwise until a reasonable white line appears.
8. Return a service switch to normal position. (Fig. 5-6)
9. Adjust the red and green drive controls for best white highlights.

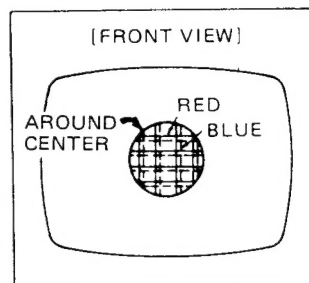


Fig. 5-7

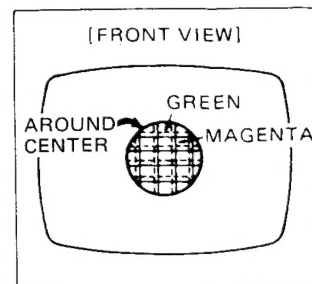


Fig. 5-8

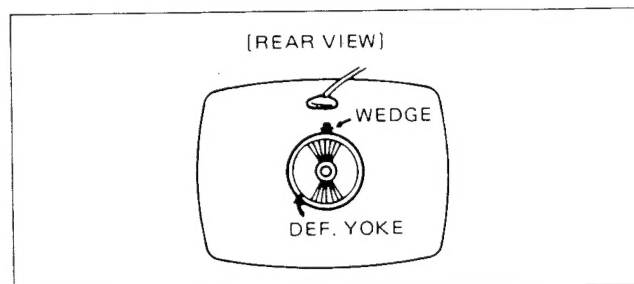


Fig. 5-9

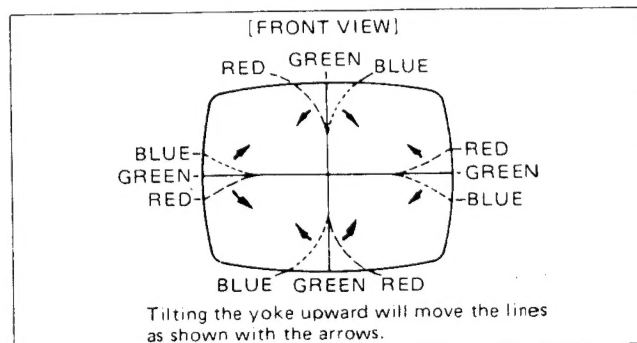


Fig. 5-10

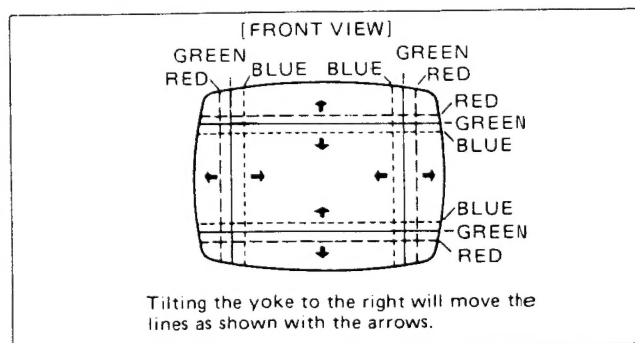


Fig. 5-11

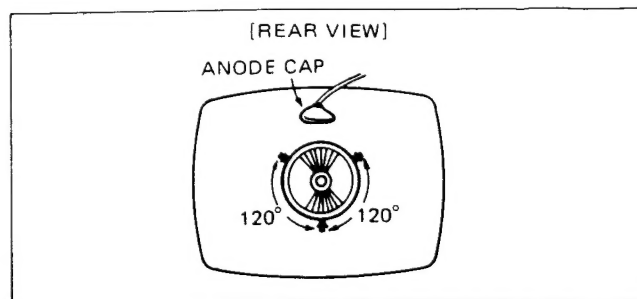


Fig. 5-12

## ALIGNMENT LOCATION

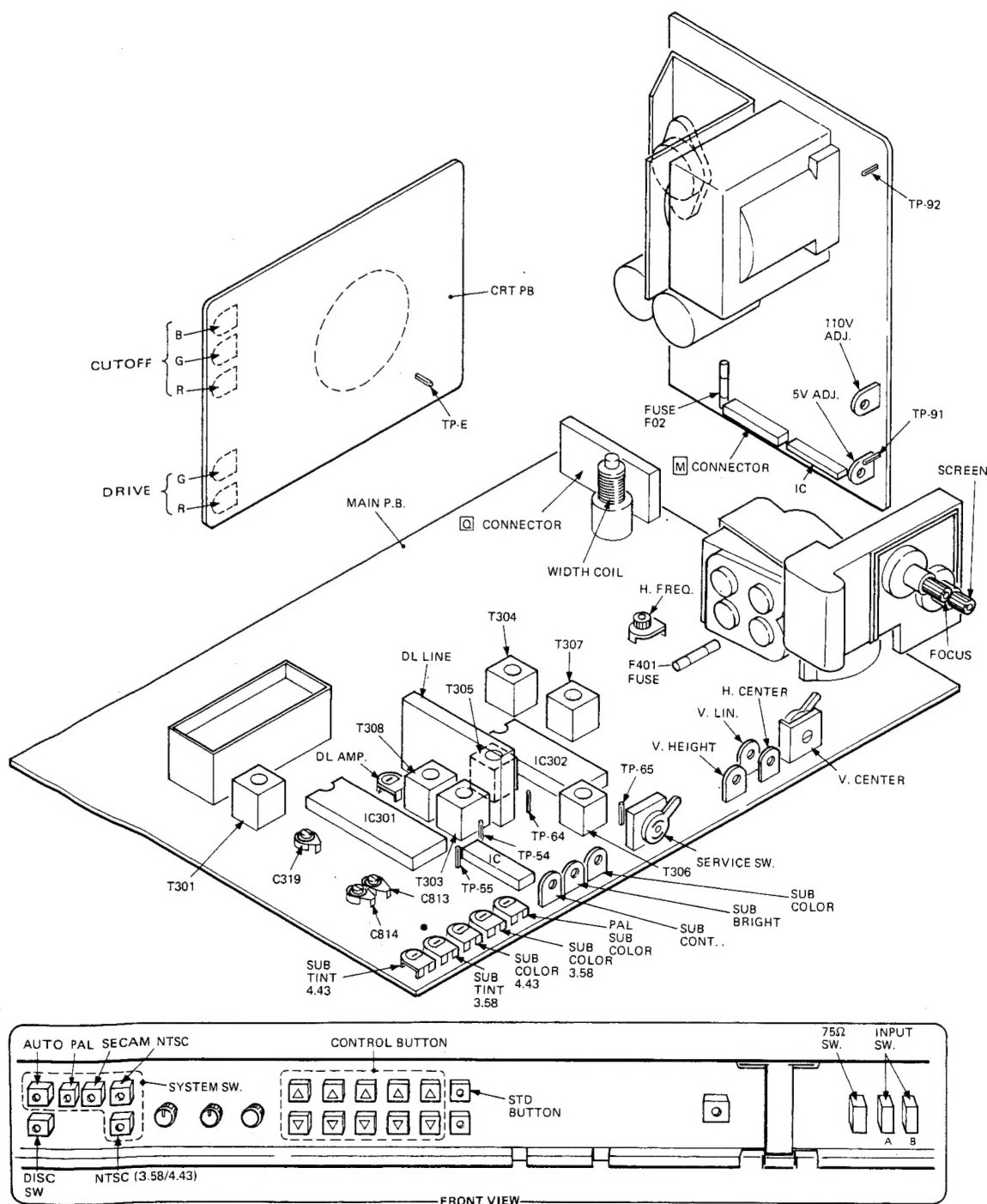


Fig. 5-13

**B<sub>1</sub> POWER SUPPLY (110V)**

The regulated +B<sub>1</sub> control (See R9012, Fig. 5-13) has been factory adjusted and normally requires no adjustment. However, if any repairs have been made to the chassis it's recommended that this adjustment should be made.

1. Allow 5 minutes to warm up.
2. Display a colour signal.
3. Connect an accurate D.C. voltmeter to TP-92 and earth.
4. Adjust 110V ADJ. VR (R9012) for a reading of following D.C. voltage.

**Note:** Should +B<sub>1</sub> control be set too high, it may cause

possible component damage. Using a simple voltmeter, it must be calibrated.

B <sub>1</sub> Voltage	110 V
<p><b>DC 5V VOLTAGE</b></p> <p>Display a colour signal, and regulate 5V ADJ. VR (R9028) for DC 5V Voltage adjustment so that DC voltage between TP-91 and earth become 5V. (See Fig. 5-13)</p> <p><b>Note:</b> The tester used should be periodically calibrated at 20 kΩ/V.</p>	



## FOCUS

Adjust FOCUS control for best overall definition and picture detail at normal brightness and contrast.  
(See Fig. 5-13)

## HORIZONTAL OSCILLATOR

1. Set the H. FREQ. VR to the mechanical center position.
2. Connect a jumper clip between (10) pin of IC501 and earth.
3. Connect a freq. counter with probe to (15) pin of IC501 and earth.
4. Adjust the H. FREQ. VR so that the oscillation freq. is 15.625 kHz.
5. Remove the jumper clip and the freq. counter.
6. Then confirm that there is no abnormality in all the channels.

## SUB CONT AND SUB BRIGHT

1. Display a colour signal.
2. Press the standard button.
3. Then align both the SUB CONT and SUB BRIGHT VR's in the Main PB ass'y until an ideal picture is obtained.

## VERTICAL AND HORIZONTAL CENTER

Centering is completed at the factory, although it may become distorted when CRT is changed.  
In such case, moving the V. CENT. switch moves the picture up or down, and adjusting the H. CENT. control moves the picture left or right.

## VERTICAL HEIGHT & LINEARITY

1. Display a crosshatch or a pattern with which symmetry can be checked.
2. Reduce the vertical size with the V. HEIGHT control.
3. Adjust the vertical symmetry with the V. LIN. control.
4. Readjust the V. HEIGHT so that the picture extends to normal size.

## HORIZONTAL WIDTH

Adjust H. WIDTH control coil (L1501) by turning it with a hexagonal adjusting bar only if RIGHT and LEFT sides of pictures can't be seen.

## NTSC COLOUR CIRCUIT

(See : Fig. 5-13)

### SUB TINT AND SUB COLOUR (3.58 MHz)

1. Press the system switch to NTSC.
2. Press the standard button.
3. Turn the 3.58/4.43 select switch to 3.58 position.
4. Adjust the 3.58 SUB COLOUR VR and the 3.58 SUB TINT VR to obtain the most natural colour.

### SUB TINT AND SUB COLOUR (4.43 MHz)

1. Press the system switch to NTSC.
2. Press the standard button.
3. Turn the 3.58/4.43 select switch to 4.43 position.
4. Adjust the 4.43 SUB COLOUR VR and 4.43 SUB TINT VR to obtain the most natural colour.

### COLOUR SYNC (3.58 MHz)

1. Press the system switch to NTSC.
2. Turn the 3.58/4.43 select switch to 3.58 position.
3. Display a colour bar signal.
4. Connect two jumper clips between pin (8) of IC801 and earth and between pin (15) of IC801 and pin (12) of IC801.
5. While rotating a trimmer condenser (C1814) using a nonmetallic screwdriver, adjust it until the horizontal striped patterns with colour become stationary or are slowly moving.
6. Remove the two jumper clips.

### COLOUR SYNC. (4.43 MHz)

1. Press the system switch to NTSC.
2. Turn the 3.58/4.43 select switch to 4.43 position.
3. Display a colour bar signal.
4. Connect two jumper clips between pin (8) of IC801 and earth and between pin (15) of IC801 and pin (12) of IC801.
5. While rotating a trimmer condenser (C1813) using a nonmetallic screwdriver, adjust it until the horizontal striped patterns with colour become stationary or are slowly moving.
6. Remove the two jumper clips.

**SUB COLOUR (PAL and SECAM)**

- Display a colour signal (PAL or SECAM).
- Press the standard button.
- Adjust the SUB COLOUR VR (PAL SUB COLOUR VR in PAL, SUB COLOUR VR in SECAM) to obtain the most natural colour.

**SECAM COLOUR CIRCUIT**

See : Fig. 5-13)

- Press the system switch to SECAM.
- Display a SECAM colour bar signal. Press the standard button.
- Connect 10:1 probe of oscilloscope to pin (27) of IC302.
- Adjust T304 for the waveform shown in Fig. 5-15.
- Connect V.T.V.M. between pin (26) of IC302 and earth, and then adjust T307 so that the voltage become to maximum.
- Connect probe of oscilloscope to TP-64 and adjust T305 for the waveform shown in Fig. 5-16.
- Connect probe of oscilloscope to TP-65 and adjust T306 for the waveform shown in Fig. 5-17.

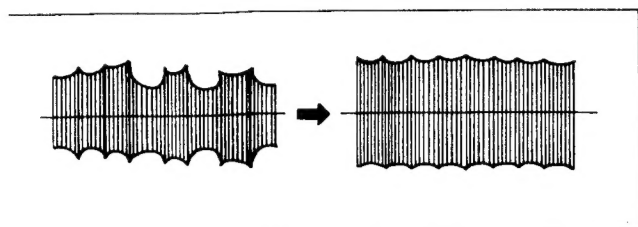


Fig. 5-15

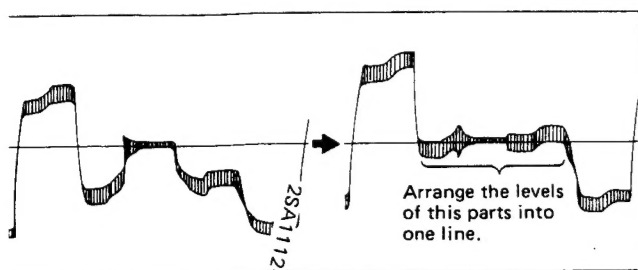


Fig. 5-16

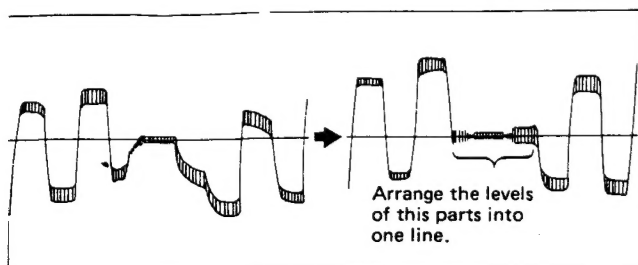


Fig. 5-17

**PAL COLOUR CIRCUIT**

(See : Fig. 5-13)

**DL-MATRIX****Note:** Do the SECAM adjustment before the PAL adjustment.

1. Press the system switch to PAL.
2. Display a PAL colour bar signal. Press the standard button.
3. Set the oscilloscope to X-Y range, and connect its X-probe to TP-54 and its Y-probe to TP-55.
4. Connect jumper clip between pin (4) of IC301 and pin (5) of IC301.
5. Apply bias +12V to pin (26) of IC301.
6. Adjust T302 to minimize resurge waveforms on the oscilloscope. [See : Fig. 5-18-(A)]
7. Adjust R348 (DL AMP) for the absence of loops and adjust T308 so that each pair of lines merge together.
8. Adjust C319 to just regain floating colour synchronization.
9. Remove the short jumper between pin (4) and pin (5) of IC301.
10. Adjust T303 to maximize waveforms on the oscilloscope.

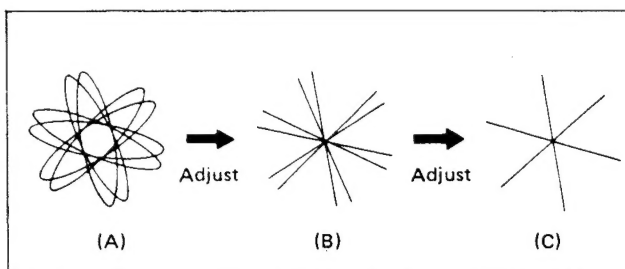


Fig. 5-18

**COLOUR SYNC**

1. Display a PAL colour bar signal.
2. Apply bias +12V to pin (26) of IC301.
3. Connect a jumper clip between pin (4) of IC301 and pin (5) of IC301.
4. While rotating a trimmer condenser (C319) using a nonmetallic screwdriver, adjust it until the horizontal striped patterns with colour become stationary or are slowly moving.
5. Remove a jumper clip.

## 6. REPLACEMENT PARTS LIST

### PRODUCT SAFETY NOTE

Components identified by the  $\Delta$  symbol in the PARTS LIST and the shaded areas on the Schematic have special characteristics important to safety. Before replacing any of these components read carefully the **SAFETY PRECAUTION** on Page 2 of this Service Manual. DO NOT degrade the safety of the set through improper servicing.

### 1. ABBREVIATED WORD OF RESISTORS AND CAPACITORS

#### RESISTOR

C R : Carbon Resistor  
Comp. R : Composition Resistor  
OM R : Oxide Metal Film Resistor  
V R : Variable Resistor  
MF R : Metal Film Resistor  
UNF R : Unflammable Resistor

F R : Fusible Resistor

CH MG R : Chip Metal Glaze Resistor

#### CAPACITOR

C Cap. : Ceramic Capacitor  
M Cap. : Mylar Capacitor  
E Cap. : Electrolytic Capacitor

BP E Cap. : Bi-Polar (or Non-Polar)

Electrolytic Capacitor

MM Cap. : Metalized Mylar Capacitor

PP Cap. : Polypropylene Capacitor


MPP Cap. : Metalized PP Capacitor

PS Cap. : Polystyrol Capacitor


Tan. Cap. : Tantalum Capacitor

CH C Cap. : Chip Ceramic Capacitor

### 2. FOLLOWING RESISTORS AND CAPACITORS OF STANDARD ELECTRICAL COMPONENTS ARE OMITTED FROM THIS PARTS LIST. EACH PART NUMBER OF THESE STANDARD REPLACEMENT COMPONENTS IS DEFINED AS FOLLOWS.

Carbon Resistor (C R): Lead form (  )

Rating	Part No.
$\frac{1}{4}W$	Q R D 1 4 1 J - □ □ □ CR $\frac{1}{4}W$ Constant term Tolerance Lead form
$\frac{1}{2}W$	Q R D 1 2 1 J - □ □ □

Composition Resistor (Comp. R): Lead form (  )

Rating	Part No.
$\frac{1}{2}W$	Q R C 1 2 1 K - □ □ □ Comp. R $\frac{1}{2}W$ Constant term Tolerance Lead form

Mylar Capacitor (M Cap.): Lead form (  )

Withstand Voltage	Part No.
50V	Q F M 1 1 H K - □ □ □ M Cap. 50V Constant term Lead form Tolerance
100V	Q F M 4 2 A K - □ □ □
200V	Q F M 4 2 D M - □ □ □

### 3. DECODING OF TOLERANCE AND CONSTANT TERM

#### TOLERANCE

J:  $\pm 5\%$  K:  $\pm 10\%$  M:  $\pm 20\%$  N:  $\pm 30\%$  H:  $\pm 50\%$   
-10%

Z:  $+80\%$  -20% P:  $+100\%$  -0% R:  $+30\%$  -10%

#### CONSTANT TERM

• Carbon Resistor ( $\frac{1}{4}W$ ,  $\pm 5\%$  Tolerance)


Q R D 1 4 1 J - □ □ □

CONSTANT TERM.

- □ □ □	2.7 $\Omega$ → Q R D 1 4 1 J - 2 R 7
↑ ↑ ↑	
1 R 0 → 1.0 $\Omega$	47k $\Omega$ → $47 \times 10^3 \rightarrow$ Q R D 1 4 1 J - 4 7 3
⋮	
9 R 7 → 9.7 $\Omega$	
⋮	
1 0 □ → 10□ means $10 \times 10^0 (\Omega)$	
⋮	
8 2 □ → 82□ means $82 \times 10^0 (\Omega)$	

Ceramic Capacitor (C Cap.): Lead form (  )

Withstand Voltage	Parts No.
50V	Q C S 1 1 H J - □ □ □ C Cap. 50V Constant term Lead form Tolerance
500V	Q C S 1 2 H P - □ □ □

Electrolytic Capacitor (E Cap.): Lead form (  )

Withstand Voltage	Parts No.
6.3V	Q E T 4 0 J R - □ □ □ E Cap. 6.3V Constant term Lead form Tolerance
10V	Q E T 4 1 A R - □ □ □
16V	Q E T 4 1 C R - □ □ □
25V	Q E T 4 1 E R - □ □ □
50V	Q E T 4 1 H R - □ □ □

#### Chip Metal Glaze Resistor (CH MG R)

Chip name	Chip No.	Substitutional Part No.
CH MG R	Q R S 1 4 8 J - □ □ □ CH MG R 1/4W Chip Constant term Tolerance	Q R D 1 4 1 J - □ □ □ CR 1/4W $\pm 5\%$

#### Chip Ceramic Capacitor (CH C Cap)

Chip name	Chip No.	Substitutional Part No.
CH C Cap	Q C S 8 1 H J - □ □ □ CH C Cap 50V Chip Constant term Tolerance	Q C S 1 1 H J - □ □ □ C Cap 50V $\pm 5\%$

#### • Ceramic Capacitor (50 Volts, $\pm 5\%$ Tolerance)

Q C S 1 1 H J - □ □ □

CONSTANT TERM.

- □ □ □	5pF → Q C S 1 1 H J - 5 R 0
↑ ↑ ↑	
1 R 0 → 1.0pF	680pF → $68 \times 10^1 \rightarrow$ Q C S 1 1 H J - 6 8 1
⋮	
8 R 0 → 8.0pF	3300pF → $33 \times 10^2 \rightarrow$ Q C S 1 1 H J - 3 3 2
⋮	
1 0 □ → 10□ means $10 \times 10^0 (pF)$	
⋮	
8 8 □ → 88□ means $88 \times 10^0 (pF)$	

## S-1804A (Main P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					<b>COIL</b>				
R1219		QVZ3230-024	VR (Sub Cont.)	20kΩ B	L1202		A76186-33	Peaking Coil	33μH
1223		" -024	" (Sub Bright)	" "	1203		" -27	"	27μH
1313		CEX40053-024	" (PAL/Sub Colour)	" "	1204		" -180	"	180μH
1328		QVZ3230-014	" (Sub Colour)	10kΩ B	1301		" -4.7	"	4.7μH
1348		CEX40053-053	" (DL Amp.)	5kΩ "	1302		" -8.2	"	8.2μH
1421		QVZ3230-022	" (V. Lin.)	200Ω "	1304		A49468-562	"	5600μH
1422		" -022	" (V. Height)	" "	1305		A76186-15	"	15μH
1506		" -022	" (H. Center)	" "	1501		CE40140-00A	W. Coil	
1509		CEX40054-053	" (H. Freq.)	5kΩ B	1502		A39835	Linearity Coil	
1821		CEX40053-014	" (4.43 Sub Tint)	10kΩ "	1503		CJ30030-022	Heater Choke Coil	
1823		" -014	" (3.58 Sub Tint)	" "	1802		A76186-8.2	Peaking Coil	8.2μH
1827		" -024	" (3.58 Sub Colour)	20kΩ "	1803		" -4.7	"	4.7μH
1829		" -024	" (4.43 Sub Colour)	" "	1804		" -180	"	180μH
					1805		" -680	"	680μH
					~ 8				
<b>RESISTOR</b>					<b>TRANSFORMER</b>				
R1416	△	QRD149J-560S	C R	56Ω ¼W J	T1301		A75325	BP Transf.	
1427		QRG029J-561A	OM R	560Ω 2W "	1302		CE40359	Burst Cleaning	
1428		" -471A	"	470Ω " "	1303		"	Phase Transf.	
1435		" -471A	"	" " "	1304		CE40357	Bell Transf.	
1436		QRX029J-3R9A	MF R	3.9Ω " "	1305		CE40358	Descri. Transf.	
1451		" -3R9A	"	" " "	1306		"	"	
1462	△	QRD149J-560S	C R	56Ω ¼W "	1307		CE40359	Ident. Transf.	
1517		QRG019J-101S	OM R	100Ω 1W "	1308		CE40371-001	DL P Transf.	
1521		QRX019J-1R5S	MF R	1.5Ω " "	1401		A39864-B	Side Pin Transf.	
1522	△	QRX039J-8R2	"	8.2Ω 3W "	1501		CE40203-00A	Drive Transf.	
1523		QRX029J-3R9A	"	470Ω 1W "	1801		A75196-B	3.58 BP Transf.	
1526		QRG019J-102S	OM R	1kΩ 1W "	1802		A75325	BP Transf.	
1529		QRG029J-822	"	8.2kΩ 2W "					
1531		QRG019J-471S	"	470Ω 1W "	<b>DIODE</b>				
1536		QRX029J-3R3A	M FR	3.3Ω 2W "	D1203.6		W06A	Si. Diode	
1551	△	QRV141F-7681	MF R	7.68kΩ ¼W ±1%	1204		1S1555	"	
1552	△	QRV141F-8061	MF R	8.06kΩ " "	1205		MA26W0(B)	"	
					1301		1S1555	"	
					~ 3				
					1304		1N60	Ge. Diode	
					1305		1S1555	Si. Diode	
					1306		RD8.2E(B1)	Zener Diode	
					1308		1S1555	Si. Diode	
					~ 11				
					1401		RD9.1E(B2)	Zener Diode	
					1403		1SS81	Si. Diode	
					1404		1N4003	"	
					1405		"	"	
					1406		V19G	"	
					1407		RD36E(B)	Zener Diode	
					1408		1SS82	Si. Diode	
					1409		1S1555	"	
					1410		RD13E(B)	Zener Diode	
					1411		1S1555	Si. Diode	
					1412		RD2.7E(B)	Zener Diode	
					1413		1S1555	Si. Diode	
					1414		MA26W0(B)	"	
					1501	△	HZ7B2LV1	Zener Diode	
					1502		RD11E(B)	"	
					1503		1SS81	Si. Diode	
					1504		U19E	"	
					1505		V09E	"	
					1506		"	"	
					1507		U19E	"	
					1508		RH-1B	"	
					1509		1S1555	"	
					1511		RM-2C	"	
					1513		RD12E(B)	Zener Diode	
					1514		RD11E(B)	"	
					1515		"	"	
					1516		1S1555	Si. Diode	
					~ 7				
<b>CAPACITOR</b>									
C1316		QEN61HM-105Z	BP E Cap.	1μF 50V M					
1319		QAT3001-010	Trimmer Cap.						
1320		QCT81CH-390YL	Chip Cap.	39pF					
1321		QCT81RH-680YL	"	68pF					
1305		QEB51HM-224M	E Cap.	0.22μF 50V M					
1336		QCT81UJ-330YL	Chip Cap.	33pF					
1337		" -560YL	"	56pF					
1342		" -330YL	"	33pF					
1343		QCT81TH-680YL	"	68pF					
1404		QFZ0083-104MZ	Mylar Cap.	0.1μF 50V K					
1406		QEE51VK-685B	Tan Cap.	6.8μF 35V K					
1407		QEM51CM-477M	E Cap.	470μF 16V M					
1408		QEH61HM-106Z	"	10μF 50V "					
1409		QEE51VK-685B	Tan Cap.	6.8μF 35V K					
1412		QEH51CM-108M	E Cap.	1000μF 16V M					
1418		QEH52CM-475M	"	4.7μF 160V "					
1428		QEH51CM-477M	"	470μF 16V "					
1505		QET52CR-336	"	33μF 160V R					
1513		QFP31HJ-562S	PP Cap.	5600pF 50V J					
1520	△	QFZ0081-9201S	MPP Cap.	9200pF 160V ±3%					
1521		QFM72AK-184M	Mylar Cap.	0.18μF 100V K					
1522		QET52CR-336	E Cap.	33μF 160V R					
1523		QFZ0082-202S	MPP Cap.	2000pF					
				DC1600V J					
1524		QFZ0067-534S	"	0.53μF 200V K					
1525		QEM51CM-108M	E Cap.	1000μF 16V M					
1530		QEM51HK-475M	"	4.7μF 50V K					
1813		QAT3001-010	Trimmer Cap.						
1814		" -010	"						



SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
D1518 1702 ~ 6 1801 ~ 4 1805		MA26W0(B) 1S1555  1S1555  RD5.6E(B)	Si. Diode " " Zener Diode		Q1701 ~ 8 1801 1803 ~ 9 1810 1811		2SC1815(Y,GR) " " 2SA1015(Y,GR) "	Si. Transistor " " Transistor "	
<b>TRANSISTOR</b>					<b>IC</b>				
Q1203 1206 1208 1251 1302 ~ 7 1401 1402 1405 1406 1407 1408 1409 1410 1430 1501 1502 1503 1505 ~ 6 1507 ~ 8		2SC1213(C) 2SC1815(Y,GR) 2SA673(C) 2SC1815(Y,GR) " " 2SA1015(Y,GR) 2SC3187 2SA1013(R,O) 2SD866B(P,Q) 2SD401A(K) 2SC1815(Y,GR) " " " 2SC1627A 2SA1015(Y,GR) 2SC1815(Y,GR)	Si. Transistor " " " " " Transistor Si. Transistor " " " " " " " Transistor Si. Transistor		IC1301 1302 1303 1401 1501 1801		M51395AP M51397AP TC4066BP AN5560 HA11423 HA11247	IC " " " " "	
					<b>OTHER</b>				
					F1401 FR1401 1402 DL1201 1301 S1401 R1459 Y1301 1801 1802 S1201	△ △ △	QMF51E2-1R0S QRH127J-152M " -2R2M <b>CE40178-001</b> <b>A76350</b> CEX40078-001 ERZ-C05ZK471 <b>CE40479-001</b> <b>CE40668-001</b> <b>CE40479-001</b> CEX40078-001	Fuse F R " Delay Line 1H Delay Line Lever Switch Z N R Crystal " " Lever Switch	1A 1.5kΩ ½W J 2.2Ω " " " V. Center " Service SW.

**SS-3036A (CRT Socket P.B. Ass'y)**

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					<b>COIL</b>				
R3102 3104 3106 3108 3110		CEX40202-053 " -053 " -053 " -022 " -022	VR (G. Cutoff) " (R. Cutoff) " (B. Cutoff) " (G. Drive) " (R. Drive)	5kΩ B " " " " 200Ω " " "	L3101 3102 ~ 4		QQL043K-221 A04725-220	Peaking Coil "	220μH "
<b>RESISTOR</b>					<b>DIODE</b>				
R3113 3114 3115 3116 3118 3120 3138		QRG029J-123 " -123 " -123 QRZ0039-332 " -332 " -332 ERZ-C05ZK271	OM R " " Comp R " " Z N R	12kΩ 2W J " " " " " " 3.3kΩ ½W K " " " " " "	D3102		RM-2C	Si. Diode	
<b>CAPACITOR</b>					<b>TRANSISTOR</b>				
C3104 3106 3107 3109		QET52ER-106 " -105 QCZ9017-102M QET52ER-106	E Cap. " C Cap. E Cap.	10μF 250V R 1μF " " 1000pF 3kV P 10μF 250V R	Q3101 ~ 3		2SC1514VC	Si. Transistor	
					<b>OTHER</b>				
					FR3128	△ △	QRH127J-470M A75522-F	F R CRT Socket	47Ω ½W J

**SS-4204A (System SW. P.B. Ass'y)**

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					<b>DIODE</b>				
R4219 4221 4223		CEX40089-B14 CEX40088-B14 " -A14	VR (Balance) " (Tone) " (V. Hold.)	10kΩ B " " " A	D4201 ~ 6 4210 ~ 12		1S1555 "	Si. Diode "	

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>TRANSISTOR</b>					<b>OTHER</b>				
Q4201		2SA1015 (Y,GR)	Transistor		SW4201		CEX40015-007	Push SW.	System SW.(AUTO/PAL/SECAM/NTSC)
4203		2SC1815 (Y,GR)	Si. Transistor		4202		" -005	"	N3.58 - N4.43
~ 5					4203		" -005	"	Disc

**SS-4205A (Front Control P.B. Ass'y)**

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>RESISTOR</b>					<b>IC</b>				
R4173		QRB041K-103	Resistor Network	10kΩ 1/8W K	IC4141		MN1541AVVM	IC	
4174		" -823	"	82kΩ " "	4142		TC4049BP	"	
4175		" -823	"	" " "	4143		TC4050BP	"	
<b>CAPACITOR</b>					<b>OTHER</b>				
C4150		QCNB41M-102A	Capacitor Block	1000pF 50V M	CF 4141		CSB500A	Ceramic Filter	
4151		" -102A	"	" " "	S4104		A76103-C	Key Board SW.	SKEW
<b>DIODE</b>					4106		"	"	Tint (Green)
D4103		LN31GCP-UHL	LED	SKEW	4107		"	"	Tint (Red)
4141		1S1555	Si. Diode		4108		"	"	Picture-Up
~ 4		"	"		4109		"	"	Picture-Down
4146		"	"		4110		"	"	STD
4147		RD4.7E(B3)	Zener Diode		4112		"	"	Detail
<b>TRANSISTOR</b>					4113		"	"	"
Q4144		2SC1815 (Y,GR)	Si. Transistor		4115		"	"	Bright-Up
4145		2SA1015 (Y,GR)	Transistor		4116		"	"	Bright-Down
					4117		"	"	Colour-Up
					4118		"	"	Colour-Down

**SS-4601A (A/V Selector P.B. Ass'y)**

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>SWITCH</b>					S4603		A76103-C	Key Board SW	Volume Up
S4601		CEX40086-007	Push Switch		4604		A76103-C	"	Volume Down

**SS-8505A (Sensor/Audio Out P.B. Ass'y)**

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>RESISTOR</b>					D8783		MA165	Si. Diode	
R8700		QRB041K-103	Resistor Network	10kΩ 1/8W K	8787		"	"	
8713		" -823	"	82kΩ " "	<b>TRANSISTOR</b>				
8731		" -103	"	10kΩ " "	Q8553		2SD637(Q,R)	Transistor	
8723		" -103	"	" " "	8702,3		2SC1815(Y,GR)	Si. Transistor	
<b>CAPACITOR</b>					8731		"	"	
C8561		QFZ0083-104M	Mylar Cap.	0.1μF 50V K	~ 8		2SC1815(Y,GR)	"	
8566		" -104M	"	" " "	8901		"	"	
8571		QEB51HM-104M	E Cap.	" " "	<b>IC</b>				
8574		" -104M	"	" " "	IC8552		TA7630P	IC	
8579		QFV81HJ-104M	TF Cap.	" " "	8553		AN7168	"	
8580		" -104M	"	" " "	8701		MN1214A	"	
8581		QEV71ER-228M	E Cap.	2200μF 25V R	8711		MN1418VVW		
8589		QEB51HM-104M	"	0.1μF 50V M	8712		MN1219		
8590		" -104M	"	" " "	<b>OTHER</b>				
8715		QETB1AM-227	"	220μF 10V M	CF 8701		CSB500A	Ceramic Filter	
8902		QEM41AM-108M	"	1000pF 16V M	FR8014	△	QRH141J-180H	F R	18Ω ¼W J
<b>DIODE</b>									
D8551		MA165	Si. Diode						
8711		"	"						
8712		"	"						
8713		MA4270(M)	Zener Diode						
8731		MA165	Si. Diode						
~ 5									

## SS-9024A (Power Supply P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					D9018		V09G	Si. Diode	
R9012		QVZ3230-053	VR (B1 Adj.)	5kΩ B	9019		1SS133	"	
9028		" -053	" (5V Adj.)	" "	9021		S1WB10	Diode Bridge	
<b>RESISTOR</b>					9023		MA4110(M)	Zener Diode	
R9001		QRG029J-473	OM R	47kΩ 2W J	9024		RGP10J	Si. Diode	
9002		QRM055K-R47	MP R	0.47Ω 5W K	9025		GU-3SY	"	
9004		QRG029J-122	OM R	1.2kΩ 2W J	9026		RD6.2E(B)	Zener Diode	
9006		QRG039J-221	"	220Ω 3W "	9027		MA4075(M)	"	
9024		QRG019J-392S	"	3.9kΩ 1W "	9028		"	"	
9036		QRF108K-100	UNF R	10Ω 10W K	9030		1SS133	Si. Diode	
<b>CAPACITOR</b>					9031		1S1555	"	
C9003,4		QCZ9011-472	C Cap.	4700pF AC400V M	9032		RGP10J	"	
9006,7		CEX40255-227	E Cap.	220μF " "	9033		MA4051(M)	Zener Diode	
9009		AX490405-331	C Cap.	330pF 2kV M	<b>TRANSISTOR</b>				
9013		QEH51EM-476M	E Cap.	47μF 25V "	Q9002		2SC1627A	Si. Transistor	
9020,1		QET52CR-107	"	100μF 160V R	9003		2SA1112(Q)	"	
9024		QEH51EM-476M	"	47μF 25V M	9006		2SC3026	"	
9029	△	QCZ9012-472	C Cap.	4700pF AC400V "	9007		SF5J42	Thyristor	
9032		QET50JR-108	E Cap.	1000μF 6.3V R	9008		2SD866B(P,Q)	Si. Transistor	
9035		QEH51AM-107M	"	100μF 10V M	9009		2SC1815(Y,GR)	"	
9047		" -107M	"	" " "	9010		"	"	
9030		QETB1JM-477	"	470μF 63V M	<b>COIL</b>				
9051		QCZ9025-472A	C Cap.	4700pF AC400V Z	L9001		A04376-680A	Peaking Coil	680μH
9052		QETB1JM-477	E Cap.	470μF 63V M	9003		CJ39509-015	Heater Choke Coil	
<b>TRANSFORMER</b>					<b>IC</b>				
T9001	△	CJ39528-00A	SW Transf.		IC9001		AN5900	IC	
9002	△	CE40361-00A	SW Drive Transf.		9002		"	"	
9003		CE40400-00D	SW Transf.		<b>OTHER</b>				
<b>DIODE</b>					TH9001	△	CE40478-001	W. Posistor	
D9001		RM-2C	Si. Diode		F9002	△	QMF51E2-R40S	Fuse	0.4A
~ 4		RU1C	"		TF9001	△	CE40528-135	Thermal Fuse	
9005		UF-3V	"		9002	△	"	"	
9007		GU-3SY	"						
9008		RGP10J	"						
9009		1SS133	"						
9010		1SS83	"						
9013		RD6.2E(B)	Zener Diode						
9014		1SS81	Si. Diode						
9016		"	"						
9017		"	"						

## SS-9023A (AC Terminal P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>CAPACITOR</b>					<b>OTHER</b>				
C9001	△	QFZ9017-104M	MM Cap.	0.1μF AC250V M	F9001	△	QMF51E2-4R0S	Fuse	4.0A
9002	△	QFZ9017-104M	"	" " "	LF9001	△	C30239-A	Line Filter	
						△	QMP4058-200R	Power Cord	

## SS-9022A (Line Filter P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>CAPACITOR</b>					<b>OTHER</b>				
C9005	△	QFZ9017-104M	MM Cap.	0.1μF AC250V M	LF9002	△	CE40819-00A	Line Filter	

## SS-9209A (AV I/O Switch P.B. Ass'y)

SYMBOL NO.	PART NO.	PART NAME	REMARK	SYMBOL NO.	PART NO.	PART NAME	REMARK
<b>RESISTOR</b> R9229 9230	QRG019J-330S " -330S	OM R "	33Ω 1W J " " "	<b>TRANSISTOR</b> Q9201 9202 9203 9231,2 9211,2 9213 9233 ~ 5 9236,7	2SC1815(Y,GR) 2SA1015(Y,GR) 2SC1815(Y,GR) 2SD637(Q,R) 2SC1815(Y,GR) 2SC1213(C) 2SD1330(T) 2SD637(Q,R)	Si. Transistor " " Transistor Si. Transistor " " Transistor	
<b>CAPACITOR</b> C9246 9247 9250	QEN61CM-106Z " -106Z " -106Z	BP E Cap. " "	10μF 16V M " " " " " "	<b>COIL</b> L9201 ~ 8	A76186-2.2	Peaking Coil	2.2μH
<b>DIODE</b> D9201 ~ 2 9204 ~ 6 9208 ~ 9 9232 9234	MA165 " " " "	Si. Diode " " " "		<b>IC</b> IC9201 9202	TC4066BP TC4052BP	IC "	
				<b>OTHER</b> S9202 J9201	A76574 A49647-C	Slide SW. Print Jack	75Ω SW.

## CHASSIS AND CABINET PARTS LIST

VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
1			CM10041-00W	Front Panel Ass'y	
2			CM20105-A01	Door	Within Front Panel Ass'y
3			CM30201-025	AV Door	"
4			CM41306-002	Spring	"
5			CM20117-A0Q	Window Plate	"
6			See View No. 51		
7			CM30622-002	Select Knob	(x2) Vol. Within Front Panel Ass'y
8			CM40478-002	Rabbit Eye	"
9			CM40497-00A	Color Mark	"
10			CM30227-012	Operation Sheet	"
11			CM40494-002	AV Select Knob	(x2) INPUT A/B Within Connect Panel Ass'y
12			CM40494-005	AV Select Knob	75Ω switch "
13	D5403		GL-9NG4	LED	DISC
14	D5405		GL-9NG4	"	INPUT B
15	D5406		GL-9NG4	"	INPUT A
16			CM40661-00B	Brand Mark Ass'y	
17			A27355-BV0	Cord Clamp	
18	V01	△	510UZB22-AC	Picture Tube	
19	L01	△	CJ39538-00D	Degaussing Coil	(x2)
20	DY01	△	CJ20110-00A	Def. Yoke Ass'y	
21			A75034-B	PC Magnet	
22			CJ30033-00A	Wedge Ass'y	(x3)
23	SP01,02		HSA1018-01E	Speaker	(x2)
24	T01	△	CE30069-00B	Power Transf.	
25			CE40214-00A	W Q Magnet	(x2)
26			A46445	Focus Cover	(x2)
27	T2502	△	CJ26073-00B	H V Transf.	
28			CM30734-A01	Filter Cover	
29			CM10043-007	Rear Cover	
30			CM20007-017	Rating Label	
31			GBSB4016N	Tap Screw	(x9)
32		△	QMP4058-200R	Power Cord	
33			N47971	Cord Clamp	



## SS-9024A (Power Supply P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>VARIABLE RESISTOR</b>					D9018		V09G	Si. Diode	
R9012		QVZ3230-053	VR (B1 Adj.)	5kΩ B	9019		1SS133	"	
9028		" -053	" (5V Adj.)	" "	9021		S1WB10	Diode Bridge	
<b>RESISTOR</b>					9023		MA4110(M)	Zener Diode	
R9001		QRG029J-473	OM R	47kΩ 2W J	9024		RGP10J	Si. Diode	
9002		QRM055K-R47	MP R	0.47Ω 5W K	9025		GU-3SY	"	
9004		QRG029J-122	OM R	1.2kΩ 2W J	9026		RD6.2E(B)	Zener Diode	
9006		QRG039J-221	"	220Ω 3W "	9027		MA4075(M)	"	
9024		QRG019J-392S	"	3.9kΩ 1W "	9028		"	"	
9036		QRF108K-100	UNF R	10Ω 10W K	9030		1SS133	Si. Diode	
<b>CAPACITOR</b>					9031		1S1555	"	
C9003,4		QCZ9011-472	C Cap.	4700pF AC400V M	9032		RGP10J	"	
9006,7		CEX40255-227	E Cap.	220μF " "	9033		MA4051(M)	Zener Diode	
9009		AX490405-331	C Cap.	330pF 2kV M	<b>TRANSISTOR</b>				
9013		QEH51EM-476M	E Cap.	47μF 25V "	Q9002		2SC1627A	Si. Transistor	
9020,1		QET52CR-107	"	100μF 160V R	9003		2SA1112(O)	"	
9024		QEH51EM-476M	"	47μF 25V M	9006		2SC3026	"	
9029	△	QCZ9012-472	C Cap.	4700pF AC400V "	9007		SF5J42	Thyristor	
9032		QET50JR-108	E Cap.	1000μF 6.3V R	9008		2SD866B(P,Q)	Si. Transistor	
9035		QEH51AM-107M	"	100μF 10V M	9009		2SC1815(Y,GR)	"	
9047		" -107M	"	" " "	9010		"	"	
9030		QETB1JM-477	"	470μF 63V M	<b>COIL</b>				
9051		QCZ9025-472A	C Cap.	4700pF AC400V Z	L9001		A04376-680A	Peaking Coil	680μH
9052		QETB1JM-477	E Cap.	470μF 63V M	9003		CJ39509-015	Heater Choke Coil	
<b>TRANSFORMER</b>					<b>IC</b>				
T9001	△	CJ39528-00A	SW Transf.		IC9001		AN5900	IC	
9002	△	CE40361-00A	SW Drive Transf.		9002		"	"	
9003		CE40400-00D	SW Transf.		<b>OTHER</b>				
<b>DIODE</b>					TH9001	△	CE40478-001	W. Posistor	
D9001		RM-2C	Si. Diode		F9002	△	QMF51E2-R40S	Fuse	0.4A
~ 4		RU1C	"		TF9001	△	CE40528-135	Thermal Fuse	
9005		UF-3V	"		9002	△	"	"	
9007		GU-3SY	"						
9008		RGP10J	"						
9009		1SS133	"						
9010		1SS83	"						
9013		RD6.2E(B)	Zener Diode						
9014		1SS81	Si. Diode						
9016		"	"						
9017		"	"						

## SS-9023A (AC Terminal P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>CAPACITOR</b>					<b>OTHER</b>				
C9001	△	QFZ9017-104M	MM Cap.	0.1μF AC250V M	F9001	△	QMF51E2-4R0S	Fuse	4.0A
9002	△	QFZ9017-104M	"	" " "	LF9001	△	C30239-A	Line Filter	
						△	QMP4058-200R	Power Cord	

## SS-9022A (Line Filter P.B. Ass'y)

SYMBOL NO.	△	PART NO.	PART NAME	REMARK	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
<b>CAPACITOR</b>					<b>OTHER</b>				
C9005	△	QFZ9017-104M	MM Cap.	0.1μF AC250V M	LF9002	△	CE40819-00A	Line Filter	

## SS-9209A (AV I/O Switch P.B. Ass'y)

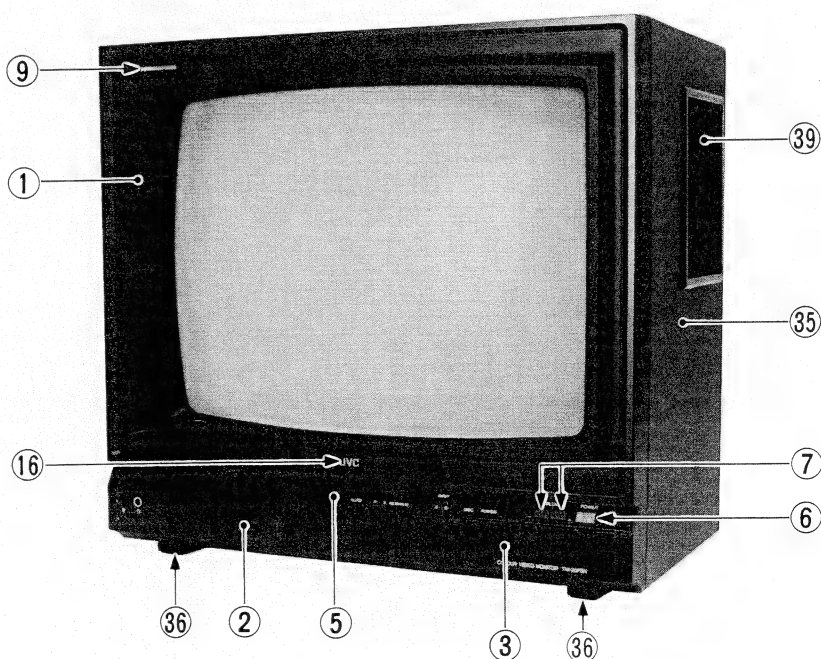
SYMBOL NO.	PART NO.	PART NAME	REMARK	SYMBOL NO.	PART NO.	PART NAME	REMARK
<b>RESISTOR</b> R9229 9230	QRG019J-330S " -330S	OM R "	33Ω 1W J " " "	<b>TRANSISTOR</b> Q9201 9202 9203 9231,2 9211,2 9213 9233 ~ 5 9236,7	2SC1815(Y,GR) 2SA1015(Y,GR) 2SC1815(Y,GR) 2SD637(Q,R) 2SC1815(Y,GR) 2SC1213(C) 2SD1330(T) 2SD637(Q,R)	Si. Transistor " " Transistor Si. Transistor " " Transistor	
<b>CAPACITOR</b> C9246 9247 9250	QEN61CM-106Z " -106Z " -106Z	BP E Cap. " "	10μF 16V M " " " " " "	<b>COIL</b> L9201 ~ 8	A76186-2.2	Peaking Coil	2.2μH
<b>DIODE</b> D9201 ~ 2 9204 ~ 6 9208 ~ 9 9232 9234	MA165 " " " "	Si. Diode " " " "		<b>IC</b> IC9201 9202	TC4066BP TC4052BP	IC "	
				<b>OTHER</b> S9202 J9201	A76574 A49647-C	Slide SW. Print Jack	75Ω SW.

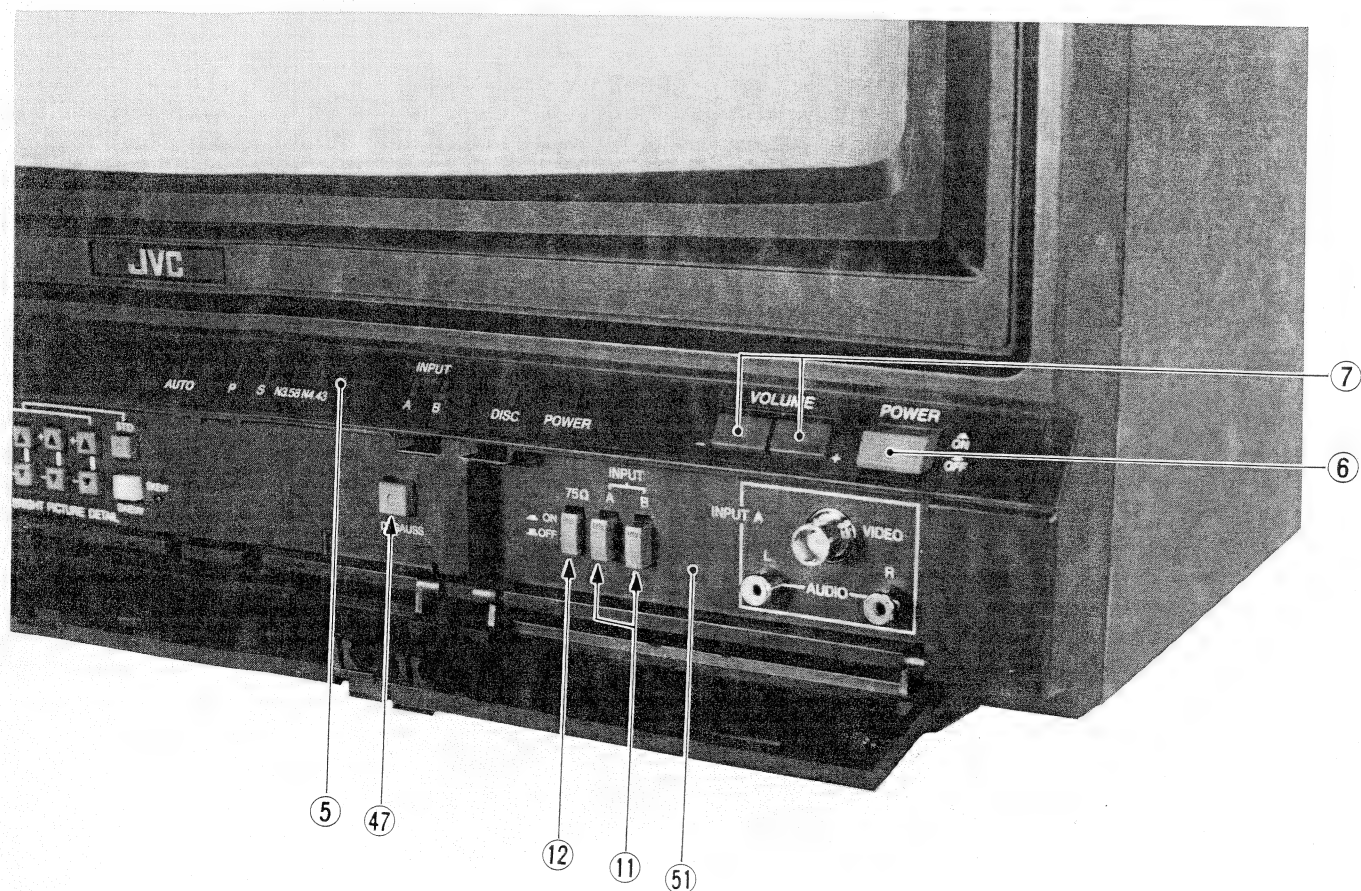
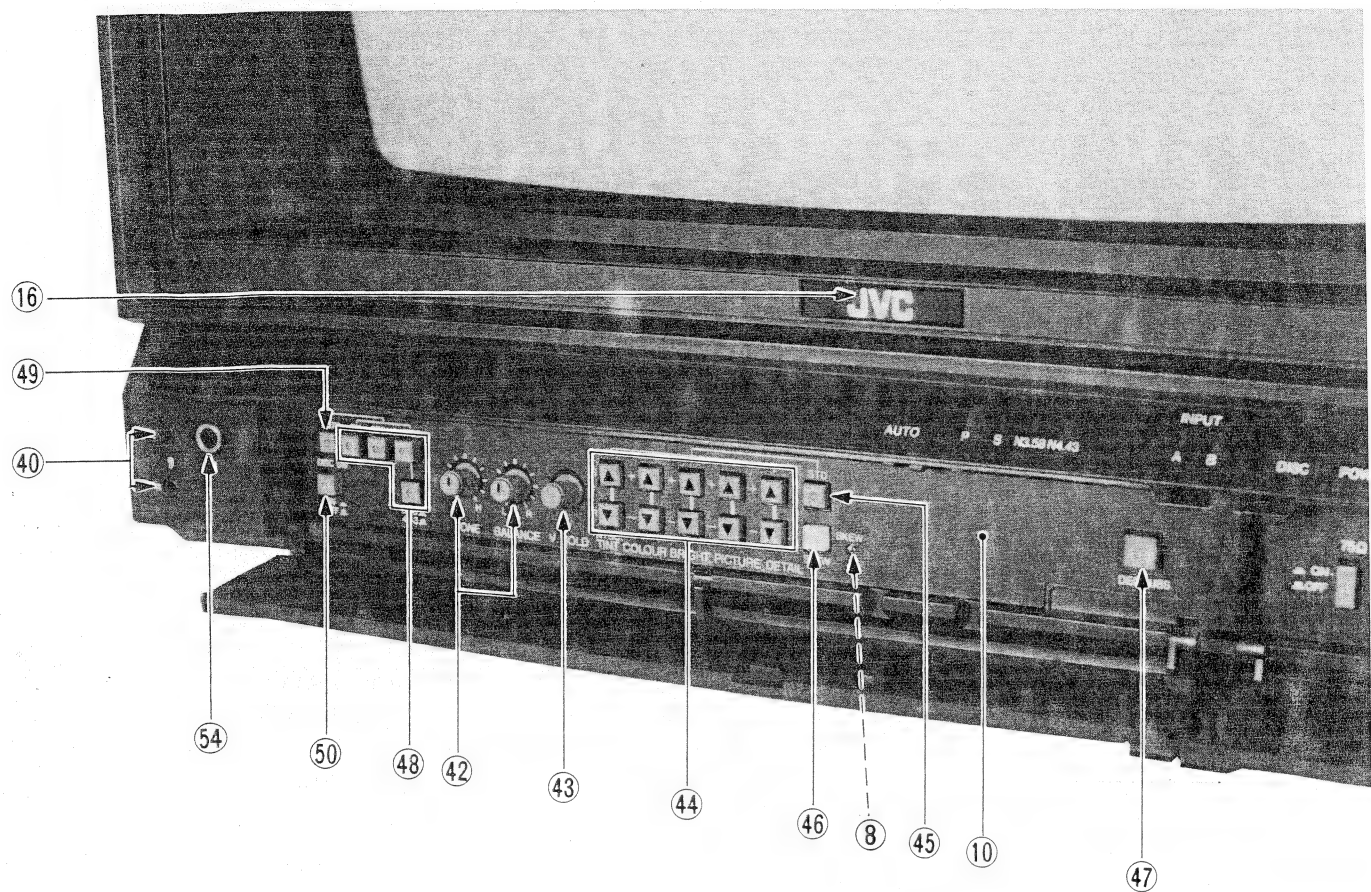
## CHASSIS AND CABINET PARTS LIST

VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
1			CM10041-00W	Front Panel Ass'y	
2			CM20105-A01	Door	Within Front Panel Ass'y
3			CM30201-025	AV Door	"
4			CM41306-002	Spring	"
5			CM20117-A0Q	Window Plate	"
6			See View No. 51		
7			CM30622-002	Select Knob	(x2) Vol. Within Front Panel Ass'y
8			CM40478-002	Rabbit Eye	"
9			CM40497-00A	Color Mark	"
10			CM30227-012	Operation Sheet	"
11			CM40494-002	AV Select Knob	(x2) INPUT A/B Within Connect Panel Ass'y
12			CM40494-005	AV Select Knob	75Ω switch "
13	D5403		GL-9NG4	LED	DISC
14	D5405		GL-9NG4	"	INPUT B
15	D5406		GL-9NG4	"	INPUT A
16			CM40661-00B	Brand Mark Ass'y	
17			A27355-BV0	Cord Clamp	
18	V01	△	510UZB22-AC	Picture Tube	
19	L01	△	CJ39538-00D	Degaussing Coil	(x2)
20	DY01	△	CJ20110-00A	Def. Yoke Ass'y	
21			A75034-B	PC Magnet	
22			CJ30033-00A	Wedge Ass'y	(x3)
23	SP01,02		HSA1018-01E	Speaker	(x2)
24	T01	△	CE30069-00B	Power Transf.	
25			CE40214-00A	W Q Magnet	(x2)
26			A46445	Focus Cover	(x2)
27	T2502	△	CJ26073-00B	H V Transf.	
28			CM30734-A01	Filter Cover	
29			CM10043-007	Rear Cover	
30			CM20007-017	Rating Label	
31			GBSB4016N	Tap Screw	(x9)
32		△	QMP4058-200R	Power Cord	
33			N47971	Cord Clamp	

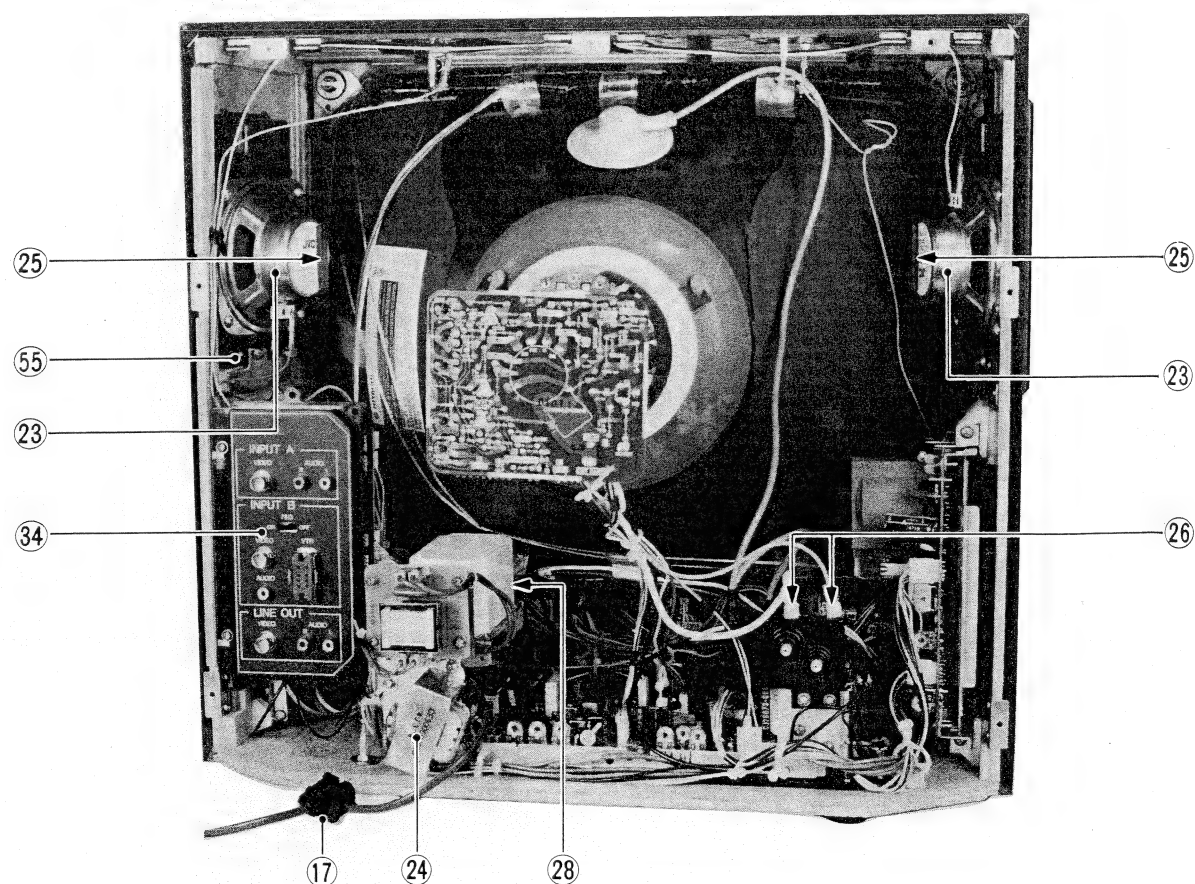
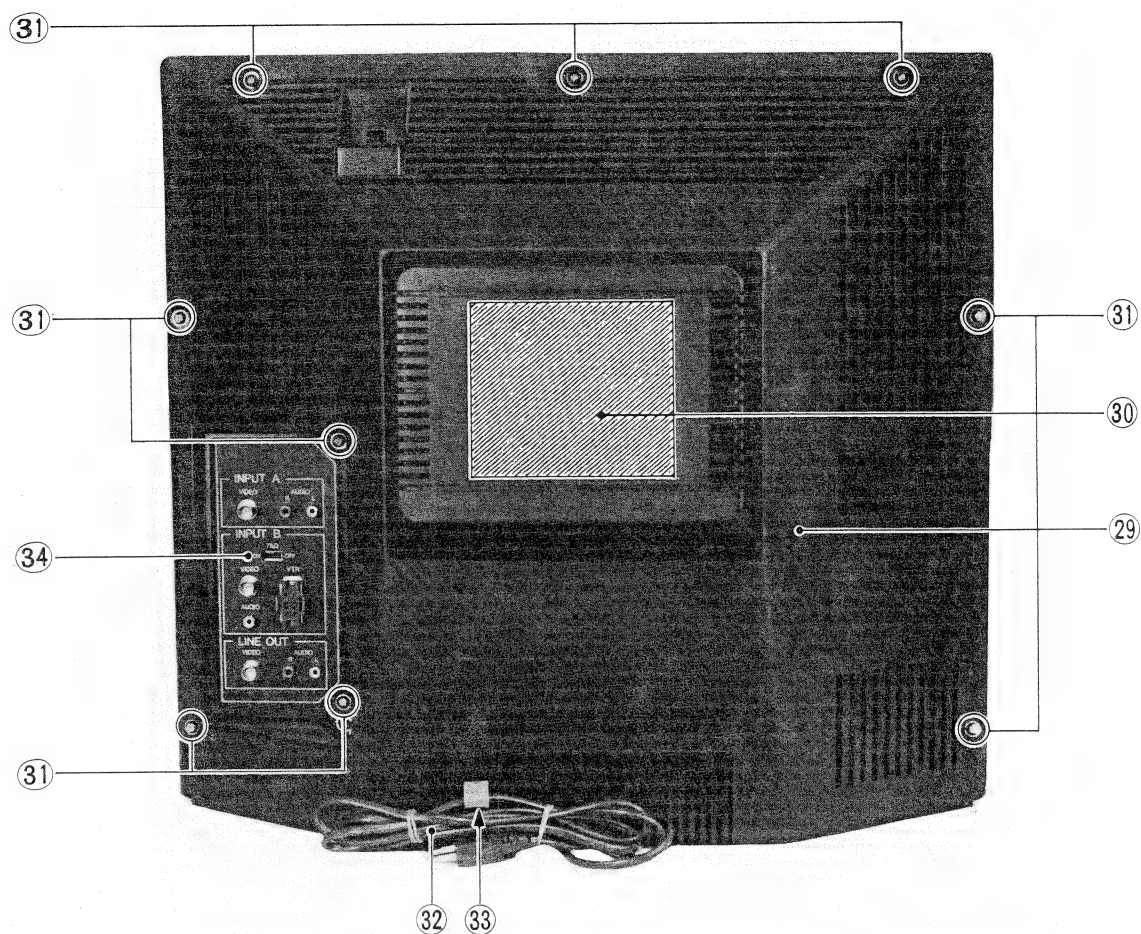
VIEW NO.	SYMBOL NO.	△	PART NO.	PART NAME	REMARK
34			CM20518-00A	Terminal Ass'y	
35			TM-20PSND-CB	Cabinet Ass'y	(x2) Within Cabinet Ass'y
36			CN30048-00A	Foot Ass'y	(x2) "
37			CN40054-00A	"	
38			CM10049-015	SP. Grill (L)	
39			CM10049-016	SP. Grill (R)	
40	J01,02		CEX40050-001	Earphone Jack	(x2) SKEW
41	D4103		LN31GCP-UHL	LED	(x2) TONE, BALANCE
42			CM40496-001	VR Knob	V. HOLD
43			CM40496-002	"	
44			CM40474-A01	Knob	(x10)
45			CM40474-B02	"	STD
46			CM40474-A06	"	SKEW
47			<b>CM40498-002</b>	"	Degauss SW.
48			CM41420-001	Button	(x4) SYSTEM Switch
49			CM41420-002	"	AUTO
50			CM41420-003	"	DISC
51			CM31180-00A	Connect Panel Ass'y	
6			CM31181-001	Power Knob	Within Connect Panel Ass'y
52	S01	△	<b>CEX40097-003</b>	Power Switch	"
53	D5401		LN842RP	LED	MAIN POWER
54	J03		<b>AX49606</b>	Jack	HEADPHONE
55			CM40575-003	Spring	(x2) SP. Grill
56	D5411		GL-9PR4	LED	AUTO Indicator
57	D5412		GL-9NG4	"	PAL "
58	D5413		GL-9NG4	"	SECAM "
59	D5414		GL-9NG4	"	NTSC 3.58 "
60	D5415		GL-9NG4	"	NTSC 4.43 "
61	C01		QCZ0101-005	C Cap.	150pF, AC1.5kV J
62	Q503	△	2SD871	Transistor	H. OUT
63			CH30158-00A	CRT Earth Wire	
64			A48457	Spring	(x2)
65	S4601		CEX40086-007	Push Switch	75Ω Switch
66	S4603		A76103-C	Key Board SW.	Vol. Up-Down
67	S4604		A76103-C	"	INPUT A/B
68	S02		CEX40199-003	Degauss Switch	

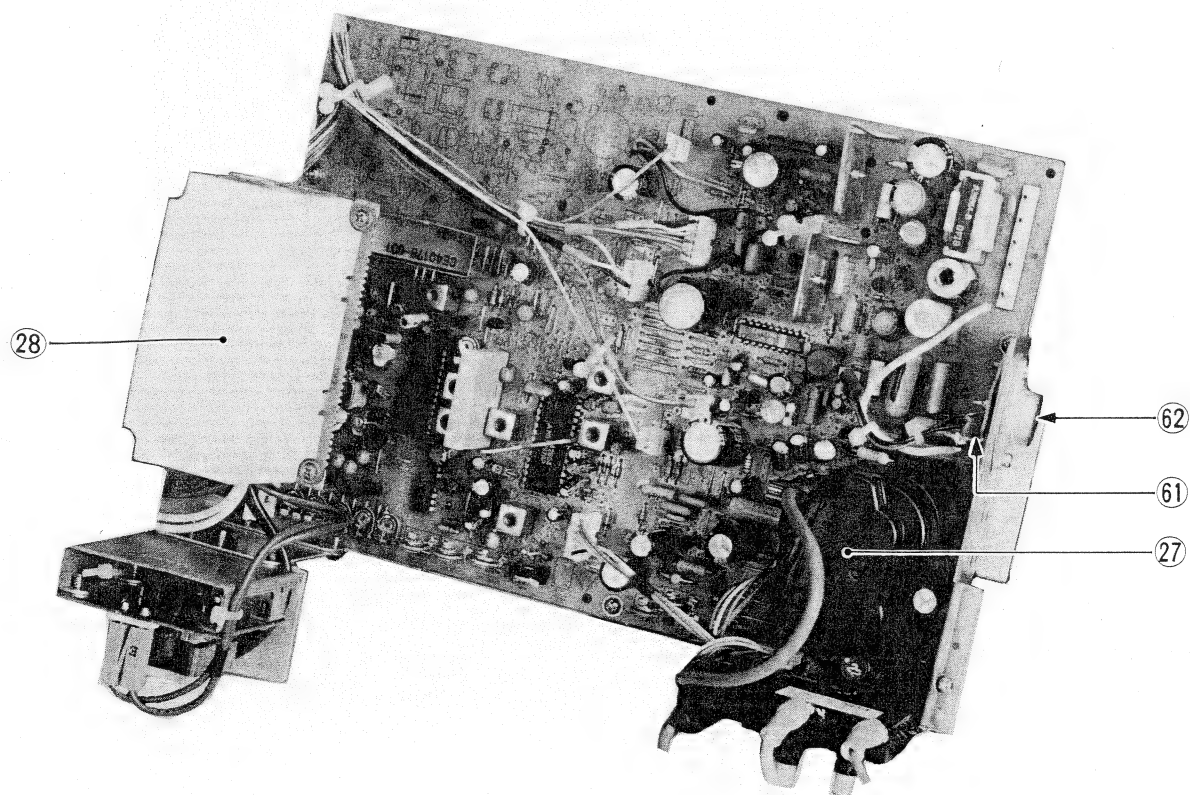
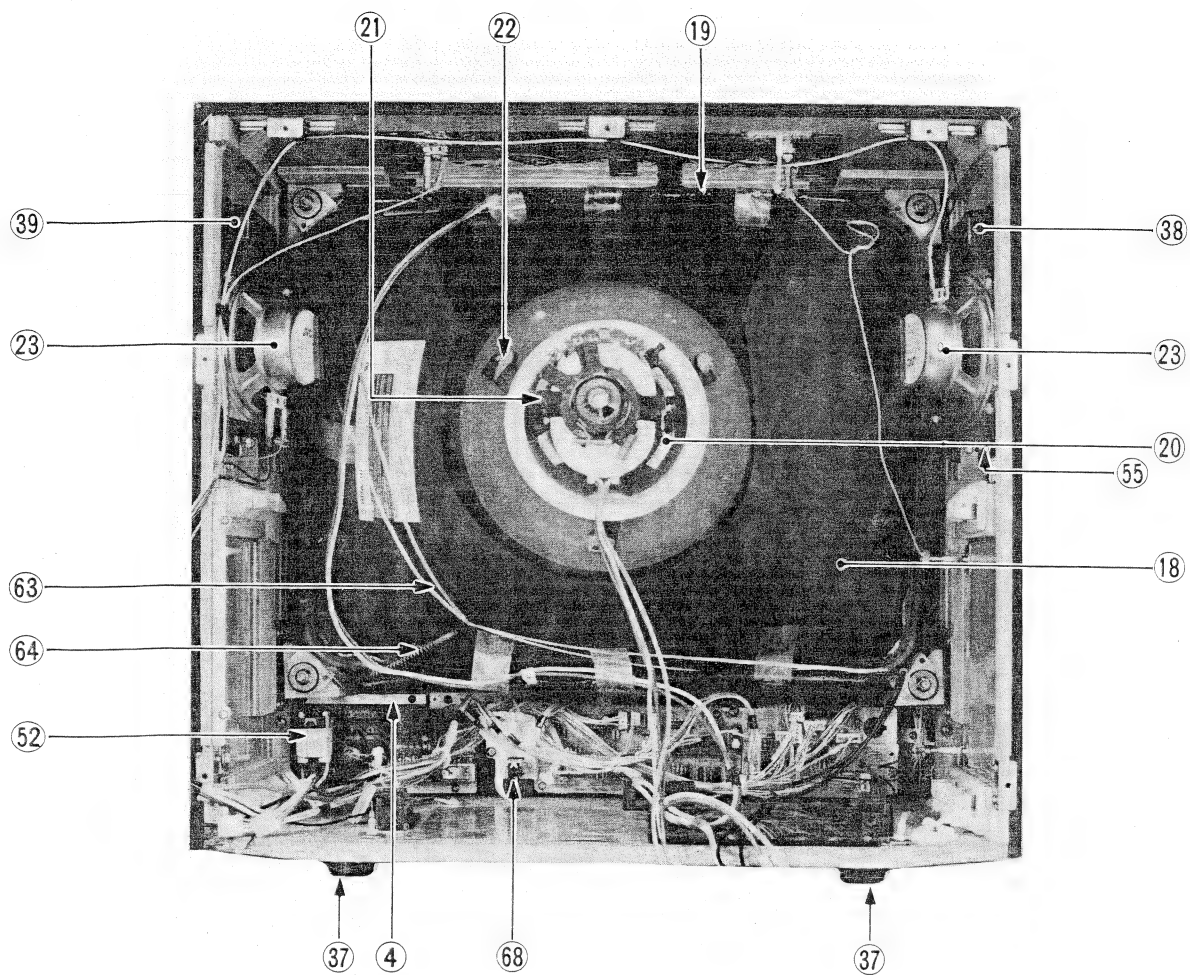
[EXPLODED VIEW]

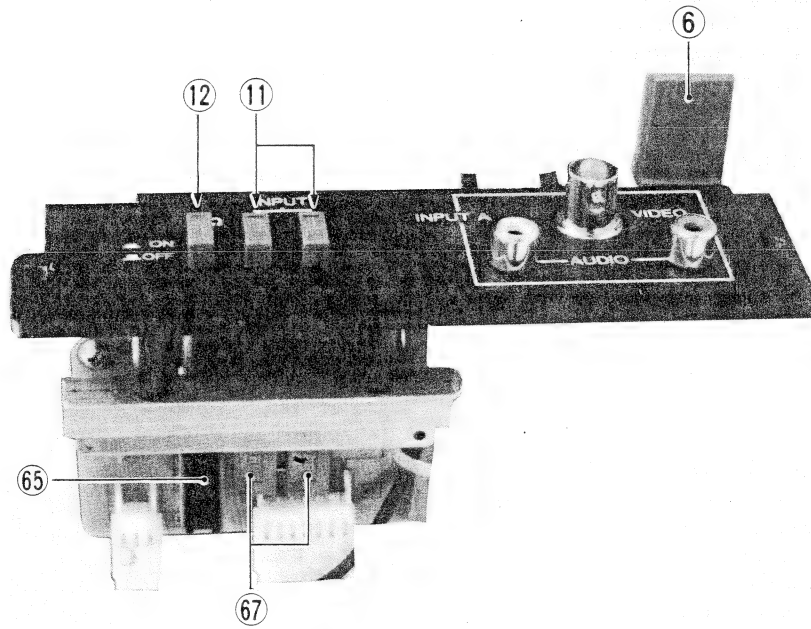
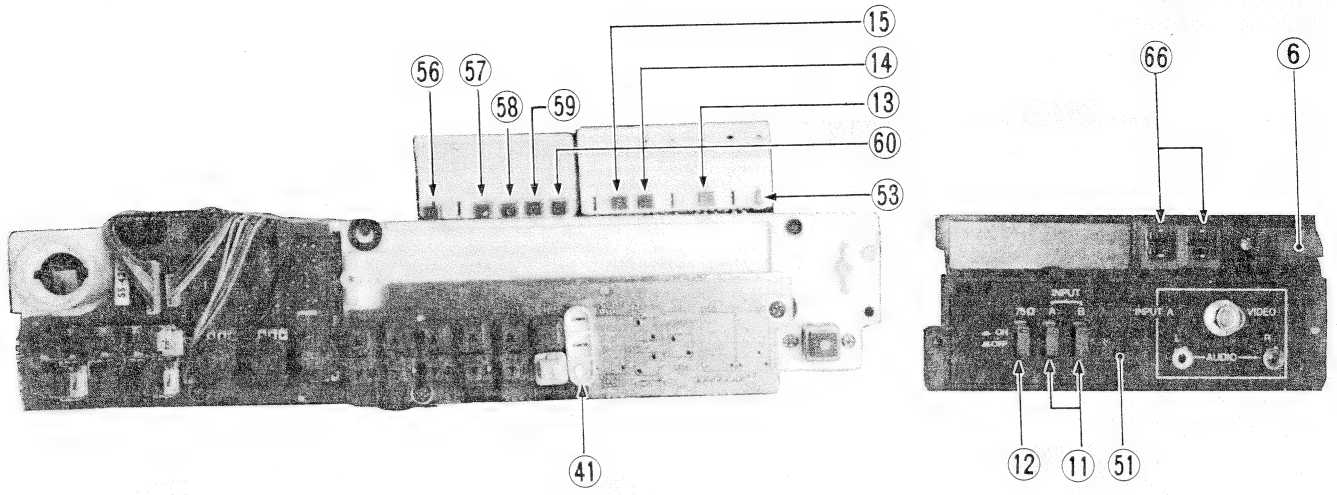






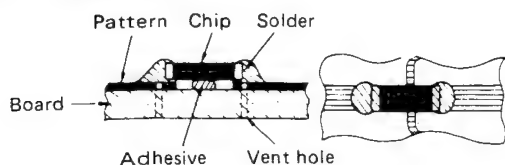






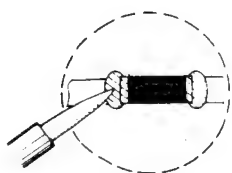
## 7. REPLACEMENT OF THE CHIP

### 1 When mounted [Resistor · Capacitor]

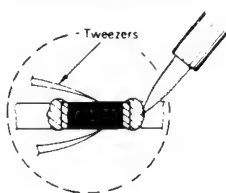


### 2 Removal of the chip

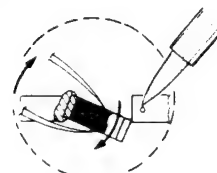
(1) Remove either of the soldered contacts.



(2) Hold the chip with tweezers and remove the other contact.



(3) Work the chip free from the adhesive with tweezers.

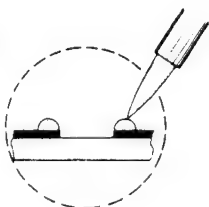


### 3 Preheating and soldering of chip pieces

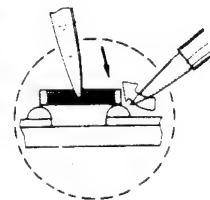
Be sure to preheat chip pieces (except the transistor) especially the capacitor before soldering with hot air, about 150°C (hair dryer or such can be used) for about 2 minutes. Then, immediately solder with an iron of about 30W.

### 4 Replacing the chip pieces

(1) Apply the solder to the board first.



(2) Hold the chip with tweezers and solder it in place, hold the iron at a 45° angle when soldering.

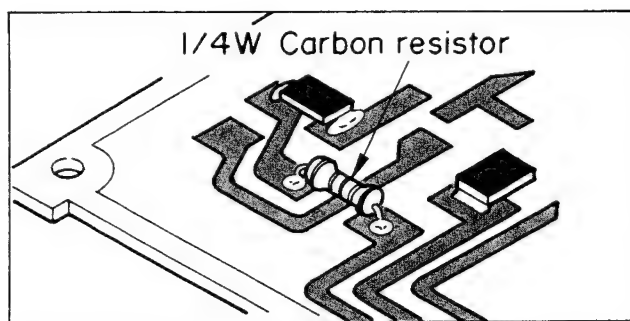


■ Discrete parts can be substitutionally mounted as shown in the figure on the right.

Mounting is also possible by passing the wires from the board front side (parts side) through the chip soldering hole (vent hole of registration part).

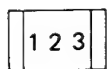
Substitute parts are as follows.

- Chip Metal Glaze Resistor
  - Carbon Resistor 1/4W ±5%
- Chip Ceramic Capacitor
  - Ceramic Capacitor 50V ±5%



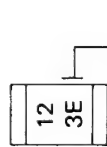
### ■ Decoding of chip parts constant terms

< Chip Metal Glaze Resistor >



Constant Multiplier term  
 $12 \times 10^3 = 12000\Omega$   
 $= 12k\Omega$

< Chip Ceramic Capacitor >



Constant Multiplier term  
 $12 \times 10^3 = 12000pF$   
 $= 0.012\mu F$

K, M, Z, P . . . . . Tolerance of ordinary type  
 C, P, R, S, T, U . . . . . Temperature coefficient of temperature compensation type



## 8. HOW TO REMOVE FOR SERVICE

### REMOVING REAR CABINET

1. Unplug the power supply cord and unscrew the nine screws (A) shown in Fig. 8-1.

### REMOVING CHASSIS

1. Remove the two screws marked (A) in Fig. 8-2.
  2. Then remove the anode wire and other wires (if necessary).
  3. Disconnect the connectors from the power P.B. Ass'y.
  4. Withdraw the chassis backward along the rail.
- \* When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket board and the chassis.

### REMOVING INPUT TERMINAL ASS'Y

1. Loosen the two screws (B) shown in Fig. 8-2 and remove the input terminal ass'y.

### REMOVING SENSOR AND AUDIO OUT BOARD

1. Remove the input terminal ass'y. (Refer to REMOVING TERMINAL ASS'Y.)
  2. Remove the two screws (A) shown in Fig. 8-3.
  3. Withdraw the SENSOR AND AUDIO OUT BOARD backward along the rail.
- \* Remove the connectors (if necessary).

### REMOVING POWER BOARD

1. Remove the two screws (C) shown in Fig. 8-2.
  2. Withdraw the POWER BOARD backward along the rail.
- \* Remove the connectors (if necessary).

### REMOVING FRONT CONTROL BOARD AND CONNECT PANEL ASS'Y

1. Unscrew the five screws (A) shown in Fig. 8-4 after removing the chassis and input terminal ass'y.
  2. Then take out the front control board and connect panel ass'y from the front panel.
- \* Remove the connects (if necessary).

### WIRE CLAMPING AND TYING BAND

1. Be sure to clamp the wire.
  2. Never remove the tying band used for wire clamping. Should it be removed, be sure to reclamp the wire in its original position.
- (Be sure to use insulating material.)

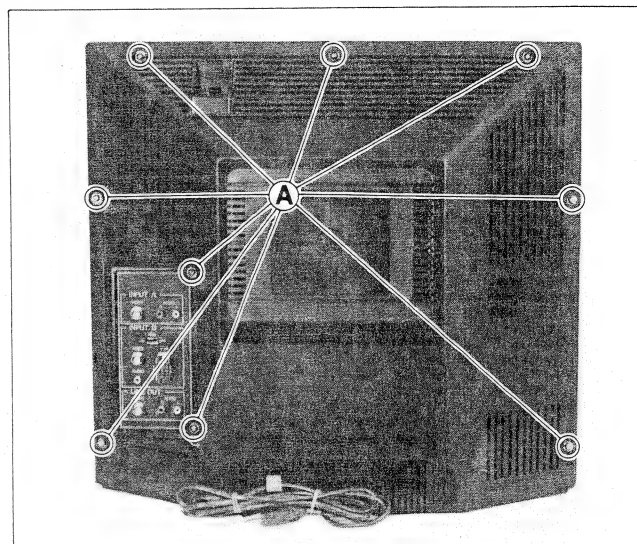


Fig. 8-1

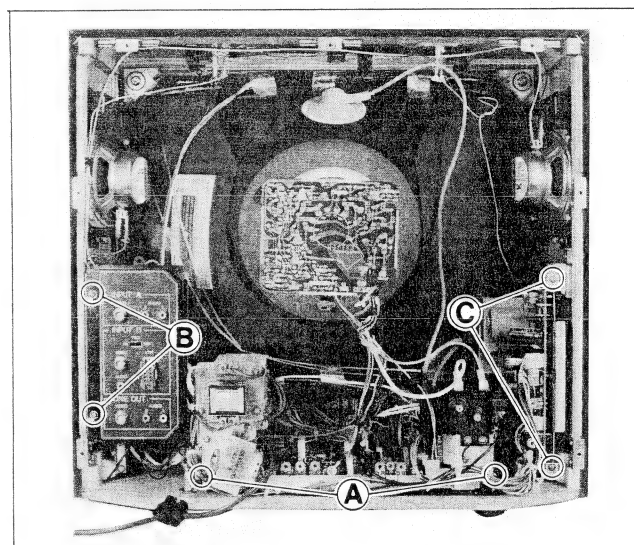


Fig. 8-2

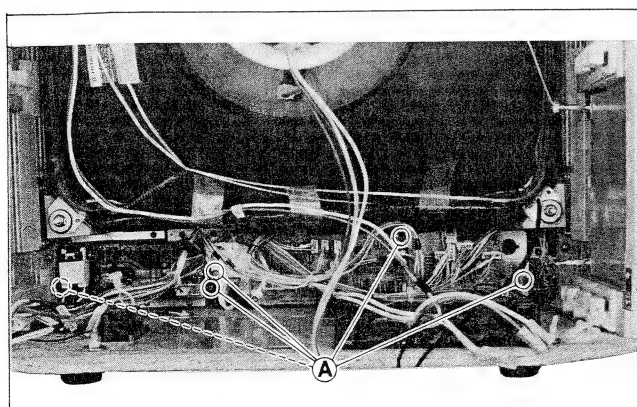


Fig. 8-4

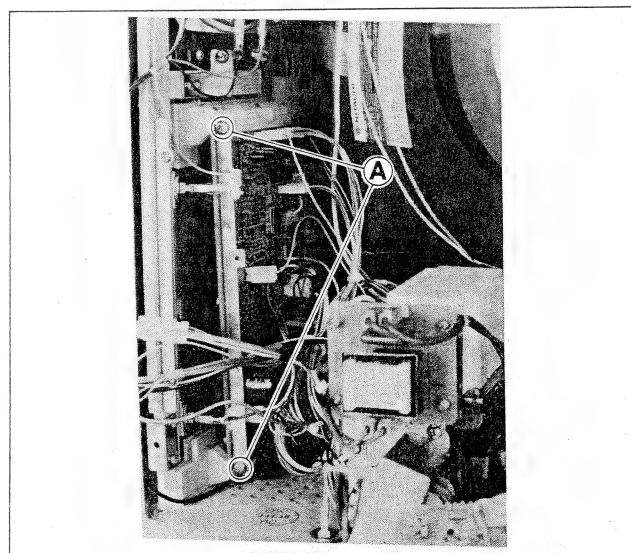
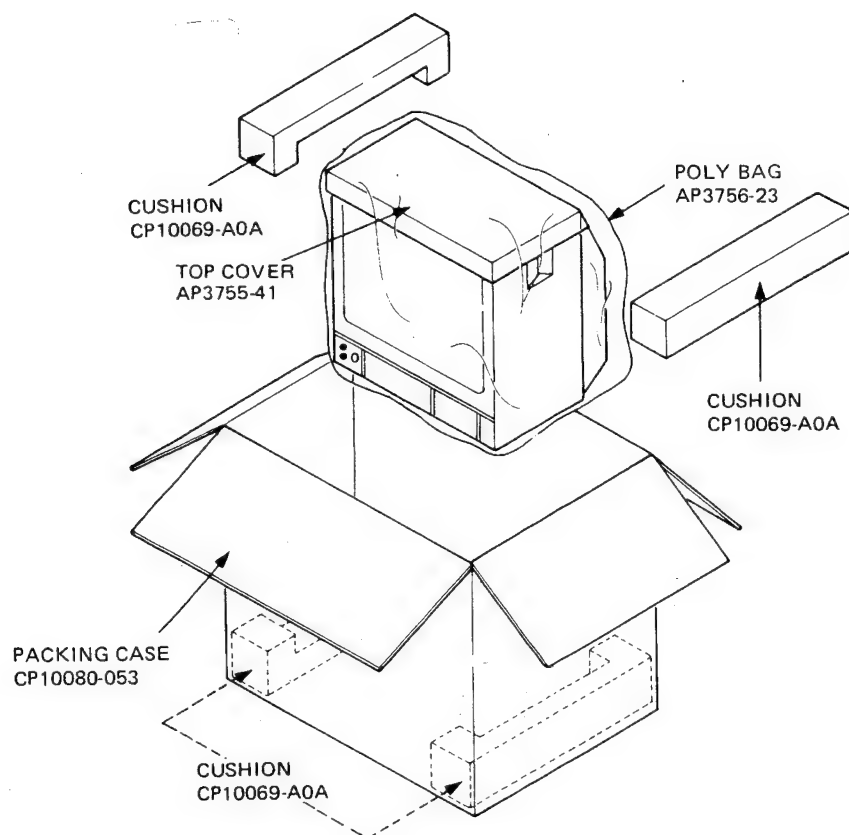


Fig. 8-3



## 3. PACKING DIAGRAM



### ATTACHED MATTERS

Inst. Book .....	TM20PSN(D)-IBA
Reflector (R) .....	CM20120-016
"    (L) .....	CM20120-015
Safety Tips .....	BT-20033
X-RAY Card .....	CE30099-001
FTZ Information .....	BT-20054-010

# JVC

VICTOR COMPANY OF JAPAN, LIMITED  
TELEVISION RECEIVER DIVISION 1106 Iwai-city, Ibaraki-prefecture, 306-06, Japan



Printed in Japan  
8412 Nissho

### MAIN SCHEMATIC DIAGRAM

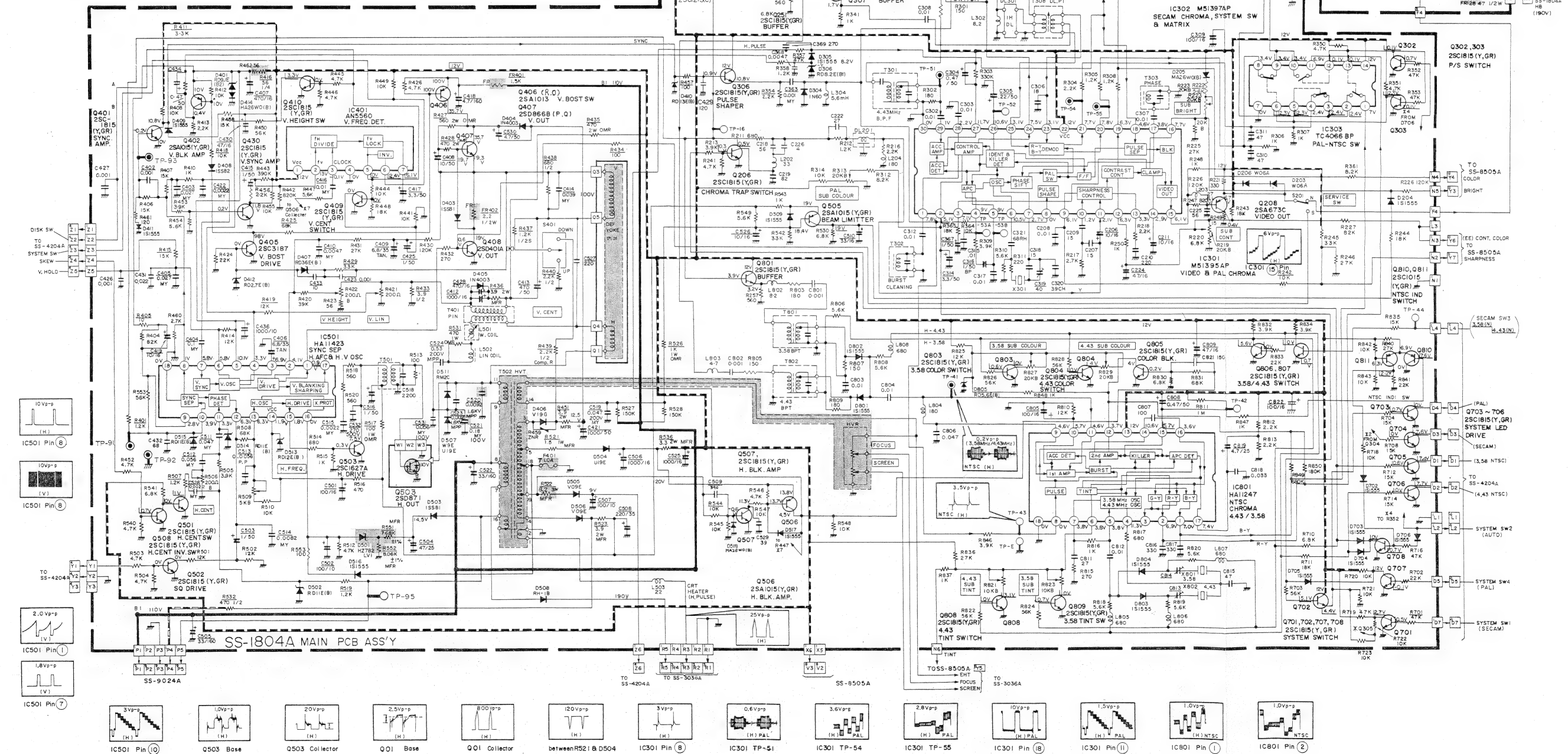
■ DIFFERENT VOLTAGE LIST

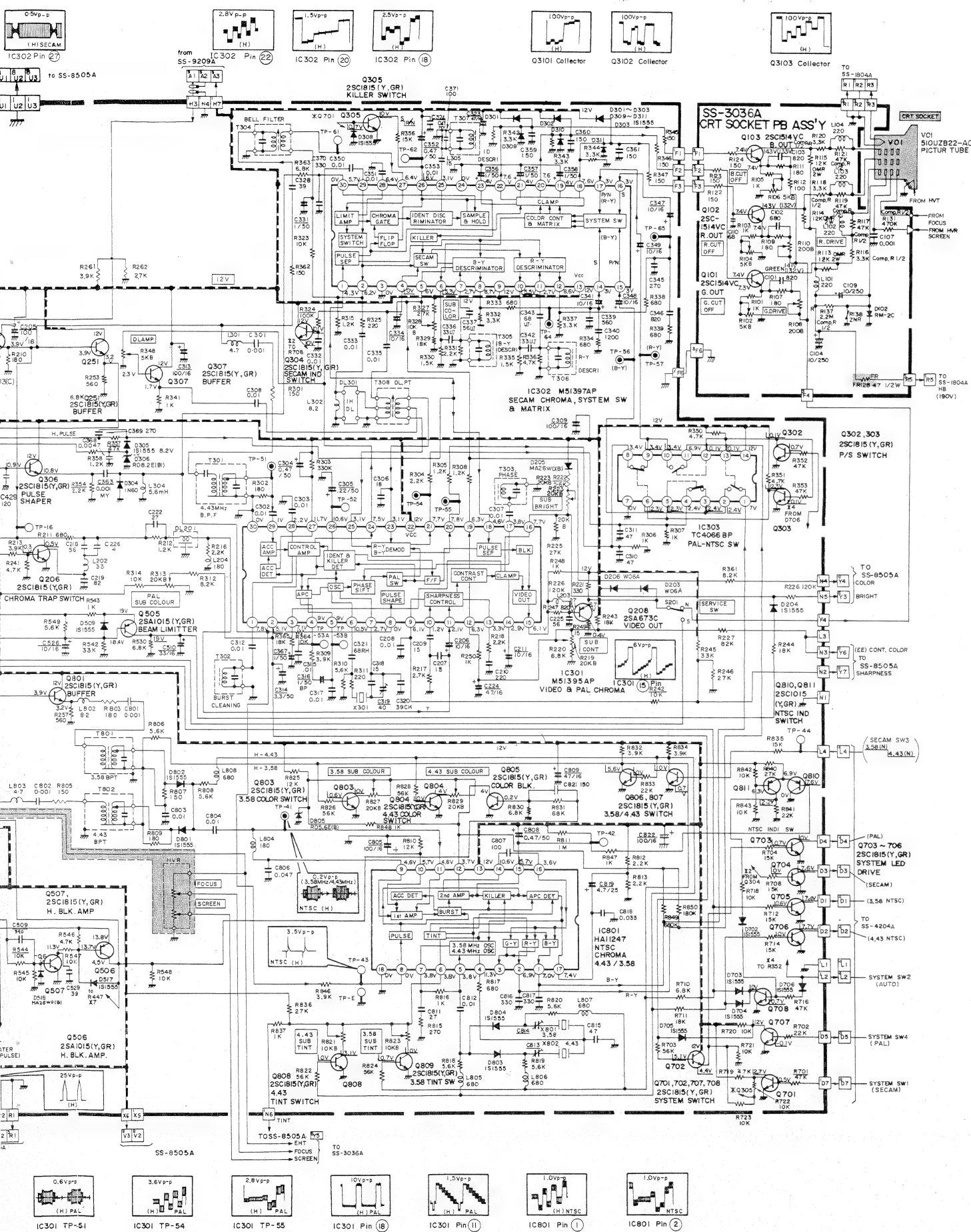
Main P.B. Ass'y																		
System Sex Position	IC Pin No.	IC301				IC302				IC401				IC303				IC80
		2	4	6	10	26	5	6	7	2	3	5	6	9	10	12	13	
PAL		8.1	0	5.5	5.5	6.0	0	12.4	6.3	2.4	12.6	12.6	3.4	3.4	0.1	0.1	7.6	
SECAM		0.1	3.0	4.4	4.5	10.0	0	12.4	6.2	2.4	12.6	12.6	3.4	3.4	0.1	0.1	7.6	
NTSC (4.43 MHz)		0.1	0	5.5	5.5	4.9	3.3	0.1	12.2	7.0	7.0	0	6.8	5.9	11.3	11.3	7.6	

[illegible][illegible]

	OB04		OB06		OB07		OB08		OB09		OB10		OB11	
System	B	C	B	C	B	C	B	C	B	C	B	C	B	C
System 3000	0	0.7	0	0.6	0	0.7	0	0.3	0	0.7	0	0.7	0	0.6
PAL	0	0.7	0	0.6	0	0.7	0	0.3	0	0.7	0	0.7	0	0.6
SECAM	0	0.7	0	0.6	0	0.7	0	0.3	0	0.7	0	0.7	0	0.6
NTSC 14.3 MHz	0.7	0	0.7	0	0.6	0	0.7	0	0.3	0	0.7	0	0.6	0.7
NTSC 14.3 MHz	0	0.7	0	0.6	0	0.7	0	0.3	0	0.7	0	0.7	0	0.6

NTSC-4430 MHz									
T1 Symbols									
T2 Symbols									
System Box Position	Q4201				Q4205				
PAL	B	C	E	B	C	E	B	C	E
SECAM	0	0	0	0.7	0	0	0	0	0
NTSC (4.43 MHz)	2.7	3.3	3.4	0	3.4	0	2.7	3.3	3.4
NTSC (3.58 MHz)	2.7	3.3	3.4	0	3.4	0	2.7	3.3	3.4





# JVC TM-20PSN (D) SCHEMATIC DIAGRAM

## NOTICE

1. Voltage and waveform measurements were made using a multi-meter and an oscilloscope with the system switch each set to [PAL], [SECAM], and [NTSC (3.58 MHz, 4.43 MHz)] and display a respective color bar signal with sufficient sensitivity.
2. Voltage measurements were made with the SKEW & DISC switch in the OFF position and the other VRs set to the pre-shipping condition.
3. Voltage shown in the schematic diagram are the same for [PAL], [SECAM] and [NTSC (3.58 MHz, 4.43 MHz)]. Voltage which are specially marked (example: 3.5V) apply for the (PAL) mode. As these values may change at a different position of the system switch, please refer to the different voltage list on SCHEMATIC DIAGRAM.

The figures of the signal circuits may be more or less different after adjustments, so use the figures simply for reference.

Multimeter used :  
DC 20kΩ/V  
Given figures are all DC voltages.  
Sweep speed of oscilloscope  
H → 20μs/div. V → 5mS/div.  
Others → sweep speed/div.

\* Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

## SYMBOL NO. DISPLAY METHOD OF COMPONENTS

- Inside PC board (example)  
SS-9016A: R1901 → R01  
SS-1804A: R1806 → R806

## CIRCUIT DIAGRAM DISPLAY SYMBOLS

1. Resistor
  - Resistance value  
When no unit is provided: [Ω]  
k: [kΩ]  
M: [MΩ]
  - Rated permissible power capacity  
When no display is made: 1/4W (main PB)  
1/6W (other PB)  
Others : Display are provided
  - Resistor type  
No type display : Carbon resistor  
OMR : Oxidized metal film resistor  
UNF : Unflammable resistor  
MFR : Metal film resistor  
FR : Fusible resistor

\* Composition resistor 1/2 [W] is displayed as "1/2S" or "comp."
2. Capacitor
  - Capacity  
Over 1 [PF] Below 1 [μF]
  - Withstand voltage  
No display : DC 50 [V]  
Others : DC withstand voltage [V]  
AC display : AC withstand voltage [V]
  - Display of electrolytic capacitor is as follows.  
(Example)  
47/50 → Capacity [μF]/withstand voltage [V]
  - Capacitor type  
No type display : Ceramic capacitor  
MY : Mylar capacitor  
MM : Metal Mylar capacitor  
PP : Polypropylene capacitor  
MPP : Metallic polypropylene  
NP : Nonpolar electrolytic capacitor  
BP : Bipolar electrolytic capacitor  
TAN. : Tantalum capacitor
3. Coil  
When no unit is displayed: [μH]

## Power supply

- : B1 Voltage (110V) □ : 5V
- : B2 Voltage (12V) □ : 20V
- \* Respective voltage values are indicated.

## Test point & GND

- : Test point
- : Primary-side GND, □ : Secondary-side GND

## Connecting method

- : Connector
- : Wrapping or soldering
- : Receptacle

## CHIP PARTS (resistor & capacitor)

Chip parts are used for SS-1804A board. Discriminating method between chip parts and conventional discrete parts is as follows (only for SS-1804A board):

- Conventional discrete parts: Symbol numbers are underlined.  
(Example) R151 C151
- Chip parts: Symbol numbers are not underlined.  
(Example) R262 C262

## DECODING CHIP PARTS CONSTANT TERMS

### CHIP METAL GLAZE RESISTOR

1 2 3 12 × 10<sup>3</sup> = 12000 [Ω] = 12 [kΩ] (Resistance)

Constant Multiplier term

### CHIP CERAMIC CAPACITOR

K, M, Z . . . . . Tolerance of ordinary type  
C, P, R . . . . . Temperature coefficient of temperature compensation type

Constant Multiplier term

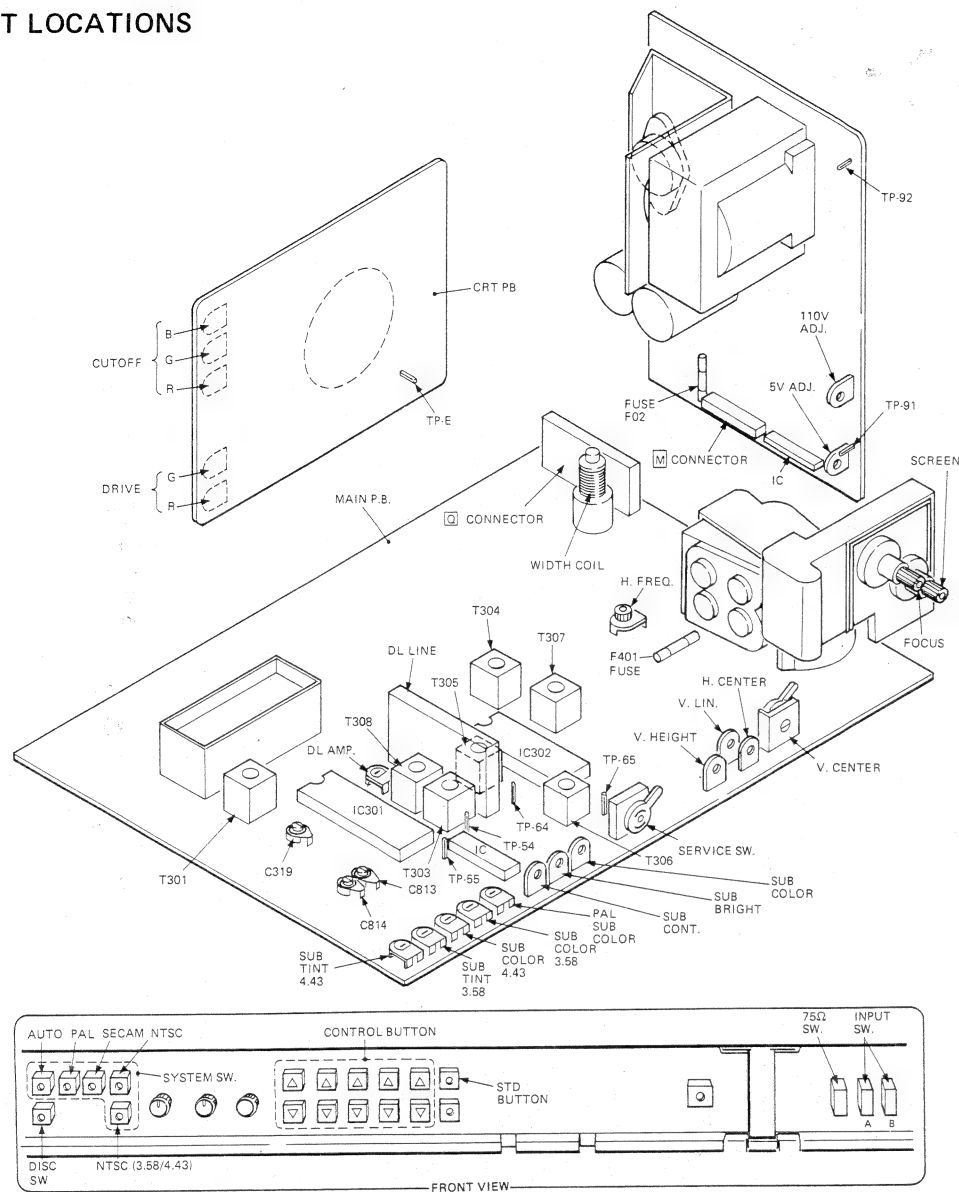
12 × 10<sup>3</sup> = 12000 [pF] = 0.012 [μF] (Capacitance)

## SAFETY

- FR (—FR) denotes a fusible resistor which operates as a fuse. When replacing fusible resistors parts indicated with black shading ( ) in the circuit diagrams, be sure to ensure safety by using designated parts.
- As to other parts too, use designated parts to maintain safety and performance.



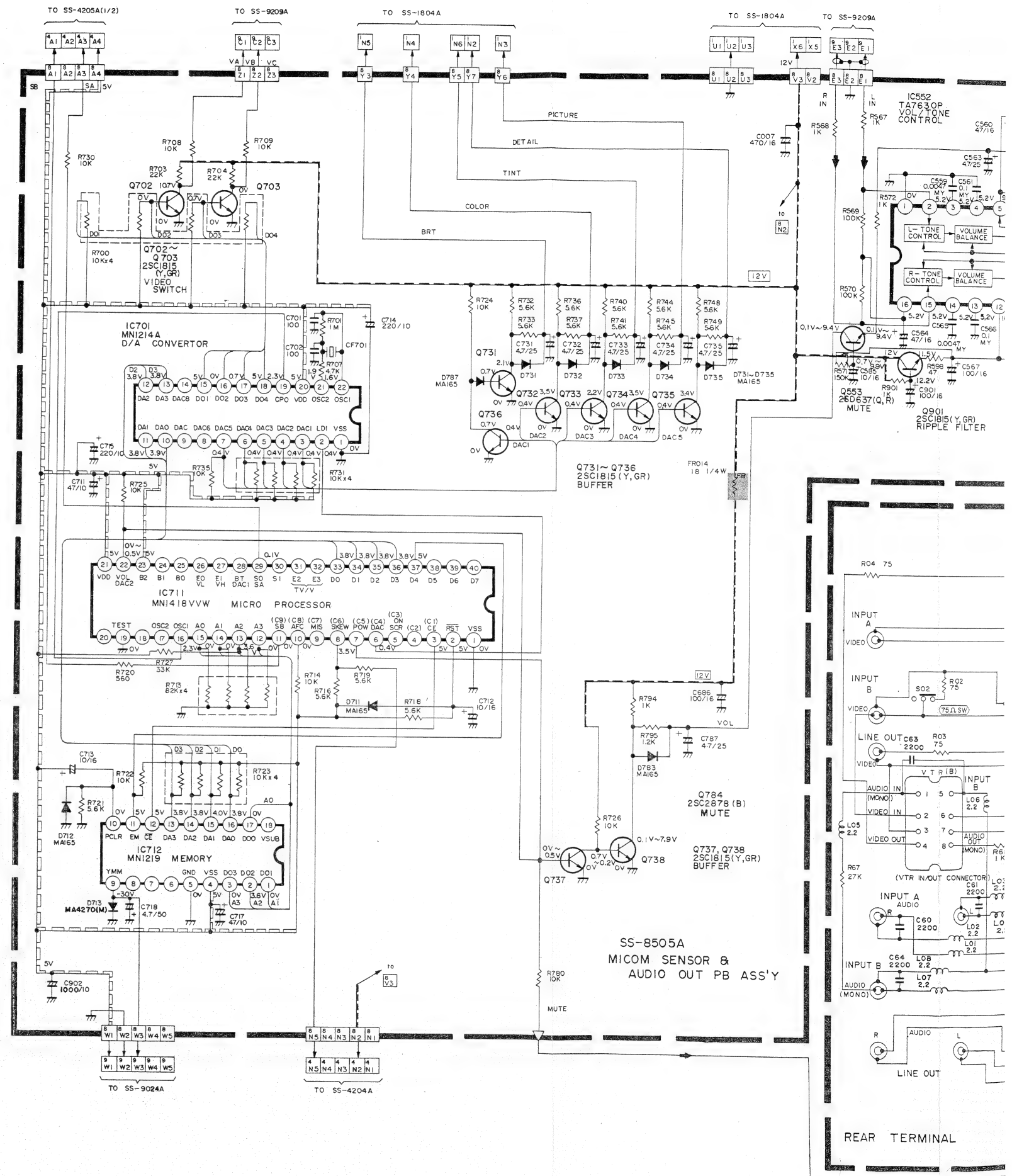
## ■ ALIGNMENT LOCATIONS



## ■ PARTS LIST (Shaded parts in the Schematic Diagram)

Symbol No.	Part No.	Part Name	Symbol No.	Part No.	Part Name
<b>SS-1804A (MAIN PB ASS'Y)</b>			<b>SS-9023A (AC TERM. P.B. ASS'Y)</b>		
C1520	QFZ0081-9201S	MPP Capacitor	C9001	QFZ9017-104M	MM Capacitor
C1521	QFM72AK-184M	M Capacitor	C9002	QFZ9017-104M	MM Capacitor
R1416	QRD149J-560S	CR	F9001	QMF51E2-4R0S	Fuse
R1462	" -560S	CR	LF 9001	C30239-A	Line Filter
R1522	QRX039J-8R2	MF R	<b>SS-9022A (LINE FILTER P.B. ASS'Y)</b>		
R1551	QRV141F-7681	MF R	C9005	QFZ9017-104M	MM Capacitor
R1552	QRV141F-8061	MF R	LF 9002	CE40819-00A	Line Filter
D1501	HZ7B2LV1	Zener Diode	<b>OUTSIDE OF THE P.B. ASS'Y</b>		
F1401	QMF51E2-1R0S	Fuse	V01	510UZB22-AC	Picture Tube
FR1401	QRH127J-152M	FR	L01	CJ39538-00D	Deg. Coil
FR1402	QRH127J-2R2M	FR	DY01	CJ20110-00A	Def. Yoke Assembly
<b>SS-3036A (CRT SOCKET PB ASS'Y)</b>			T01	CE30069-00B	Power Transformer
FR3128	QRH127J-470M	FR	T1502	CJ26073-00B	H V Transformer
<b>SS-8505A (MICON/AUDIO OUT P.B. ASS'Y)</b>				QMP4058-200R	Power Cord
FR8014	QRH141J-180H	FR		CEX40097-003	Power Switch
<b>SS-9024A (POWER SUPPLY P.B. ASS'Y)</b>			S01	2SD871	Transistor
T9001	CJ39528-00A	SW Transformer	Q503		
T9002	CE40361-00A	SW Drive Transformer			
C9029	QCZ9012-472	C Capacitor			
TH9001	CE40478-001	W. Posistor			
F9002	QMF51E2-4R0S	Fuse			
TF9001,2	CE40528-135	Thermal Fuse			

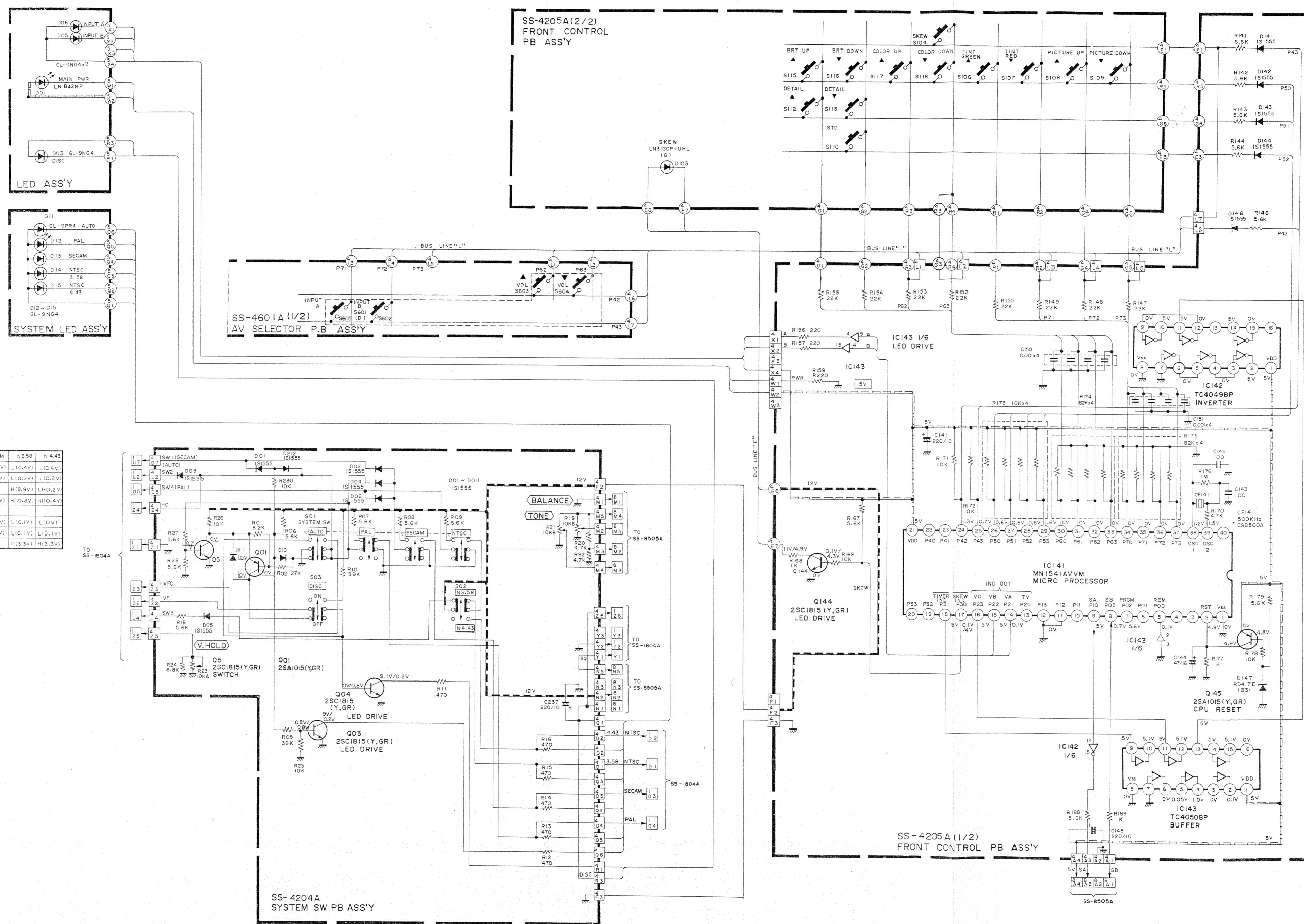
## MICON SENCER AUDIO OUT &amp; AV I/O SW. SCHEMATIC DIAGRAM



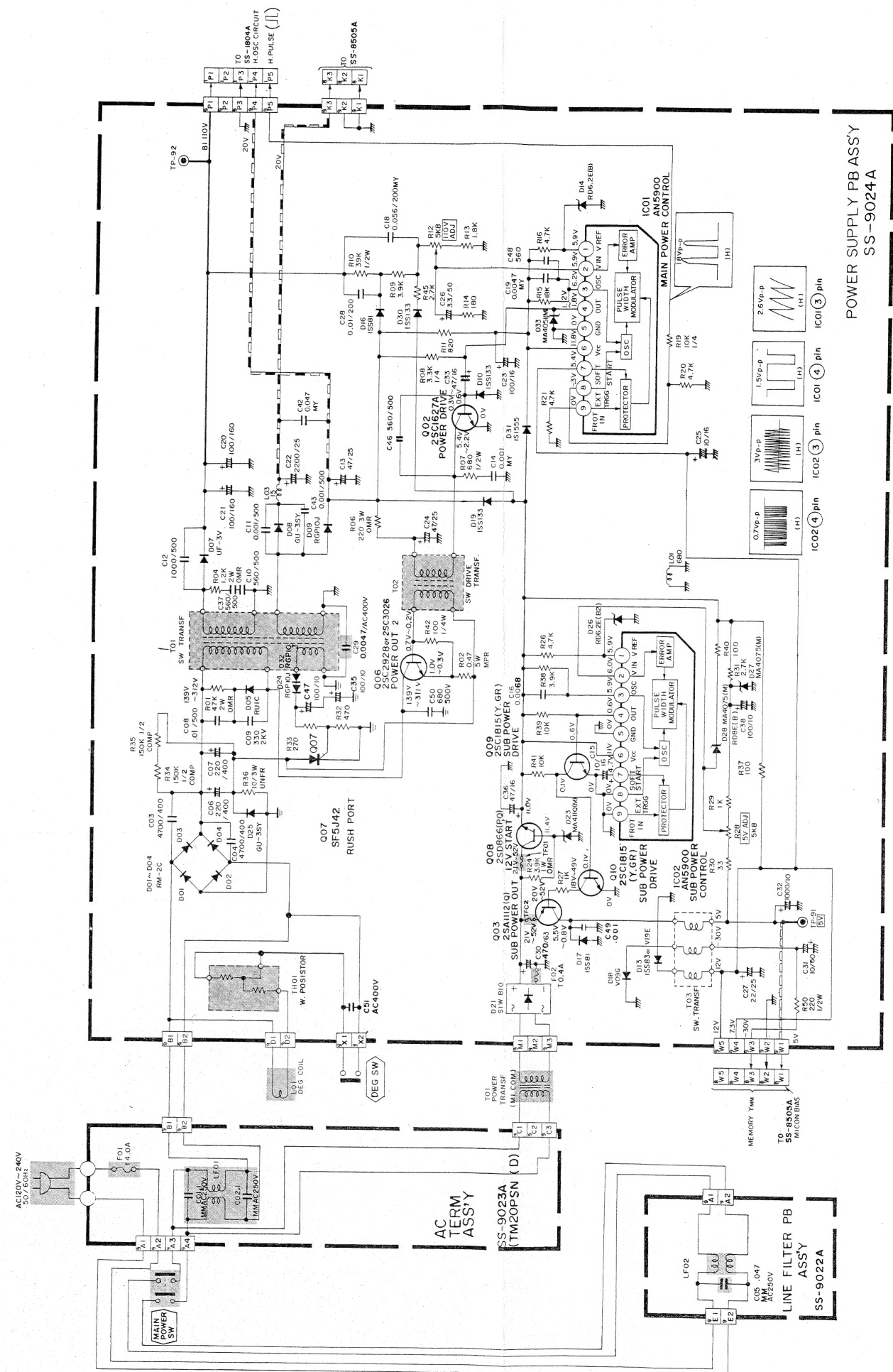
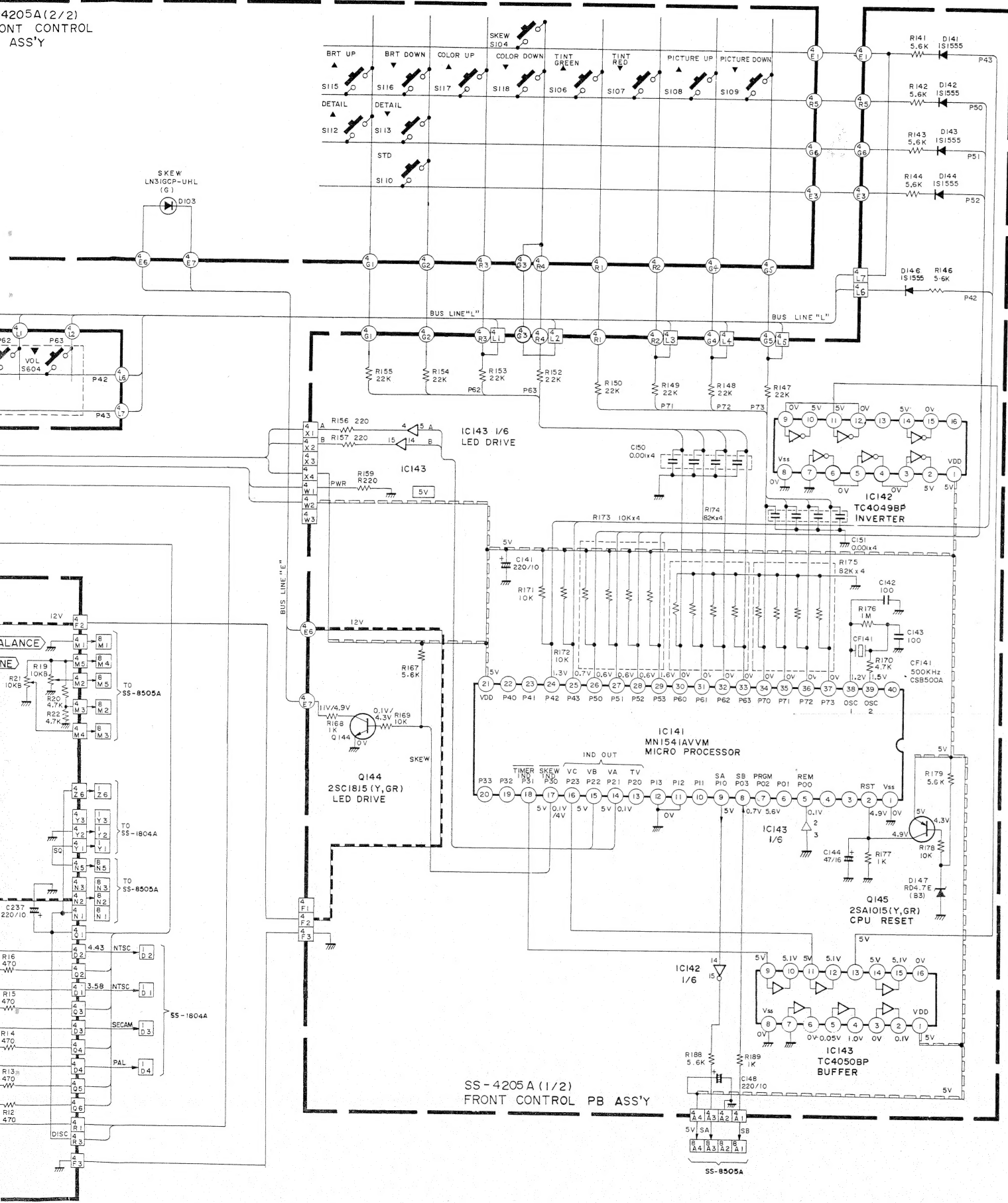
TM-20PSN (D)      TM-20PSN (D)



CONNECTOR	AUTO	PAL	SECAM	N.3.58	N.4.43
<b>4</b> D7 (SW 1)	H (5 V)	L (0.5 V)	H (3.6 V)	L (0.4 V)	L (0.4 V)
<b>4</b> L2 (SW 2)	—	H (3.7 V)	H (3.2 V)	L (0.2 V)	L (0.2 V)
<b>4</b> L4 (SW 3)	—	—	—	H (5.9 V)	L (-0.2 V)
<b>4</b> D5 (SW 4)	L (-0.2 V)	L (-0.2 V)	H (3.8 V)	H (0.3 V)	H (0.4 V)
<b>4</b> Z4 (H, C)	—	H (4.2 V)	H (3.7 V)	L (0.1 V)	L (0 V)
<b>4</b> Z3 (V, FO)	—	H (12.4 V)	H (2.5 V)	L (0.1 V)	L (0.1 V)
<b>4</b> Z2 (V, FI)	—	L (0 V)	L (0 V)	L (0.3 V)	H (3.3 V)



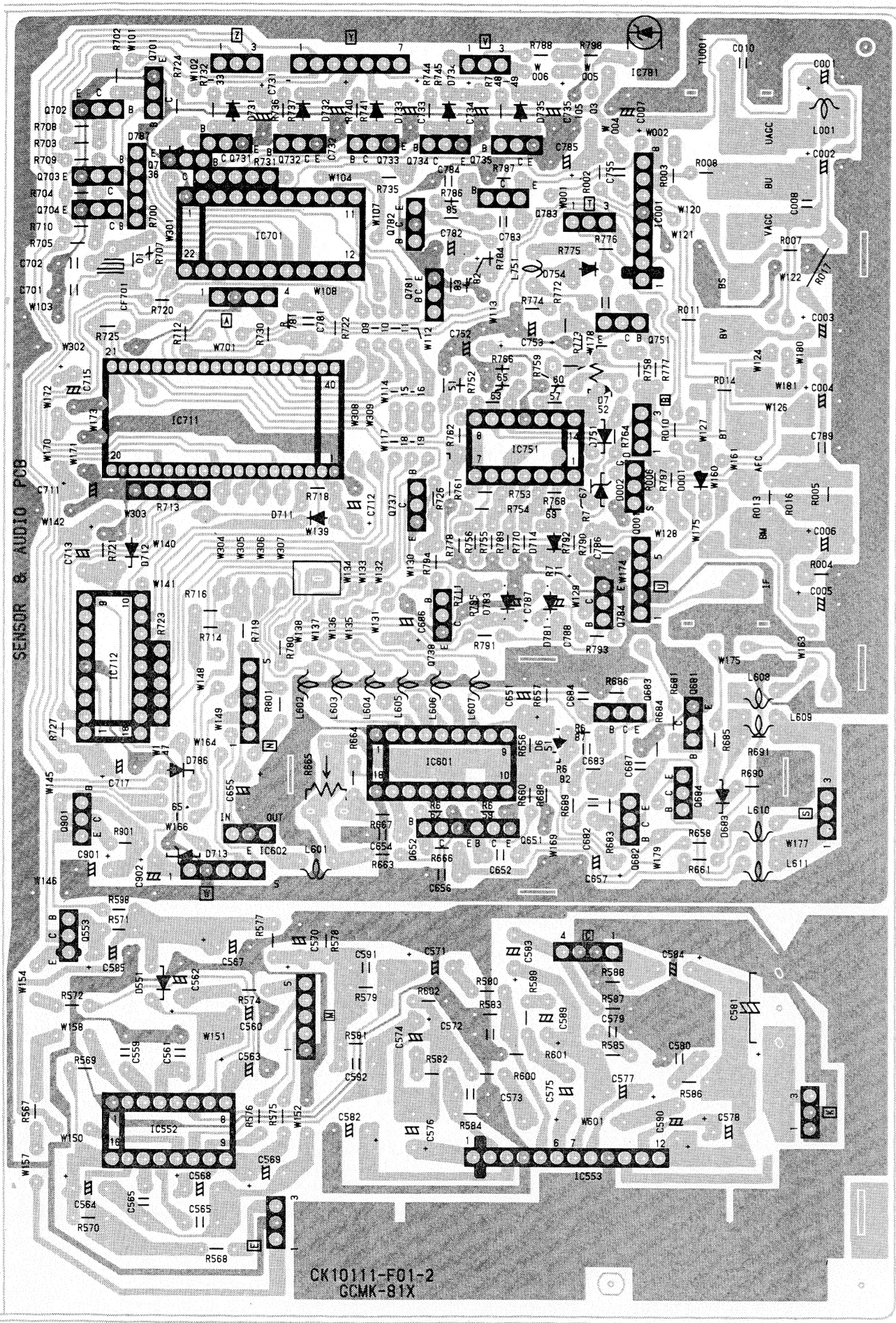












CK20160-A02



■ BASINGS OF TRANSISTOR & ICs

